Manitoba

Annual Report
1999 - 2000

Conservation

Includes 10% post-consumer waste

101-00296/

MINISTER OF CONSERVATION

Legislative Building
Winnipeg, Manitoba, CANADA
R3C 0V8

The Honourable Peter M. Liba, C.M.
Lieutenant Governor of Manitoba
Government House
Winnipeg, Manitoba

Your Honour:

I am pleased to present you with this the 69th Annual Report of the Manitoba Department of Conservation for the year ending March 31, 2000.

Yours truly,

Oscar Lathlin
Minister

Manitoba
2000
Our Past. Our Future. Our Celebration.
Notre passé. Notre avenir. Notre fête.

Manitoba

Deputy Minister of
Conservation

Legislative Building
Winnipeg, Manitoba CANADA
R3C 0V8

The Honourable Oscar Lathlin
Minister of Conservation
Legislative Building
Winnipeg, Manitoba
R3C 0V8

Dear Sir:

I am pleased to provide the Annual Report of Manitoba Conservation for the fiscal year 1999-2000.

Respectfully submitted,

Norm Brandson
Deputy Minister

Manitoba
2000
Our Past. Our Future. Our Celebration.
Notre passé. Notre avenir. Notre fête.

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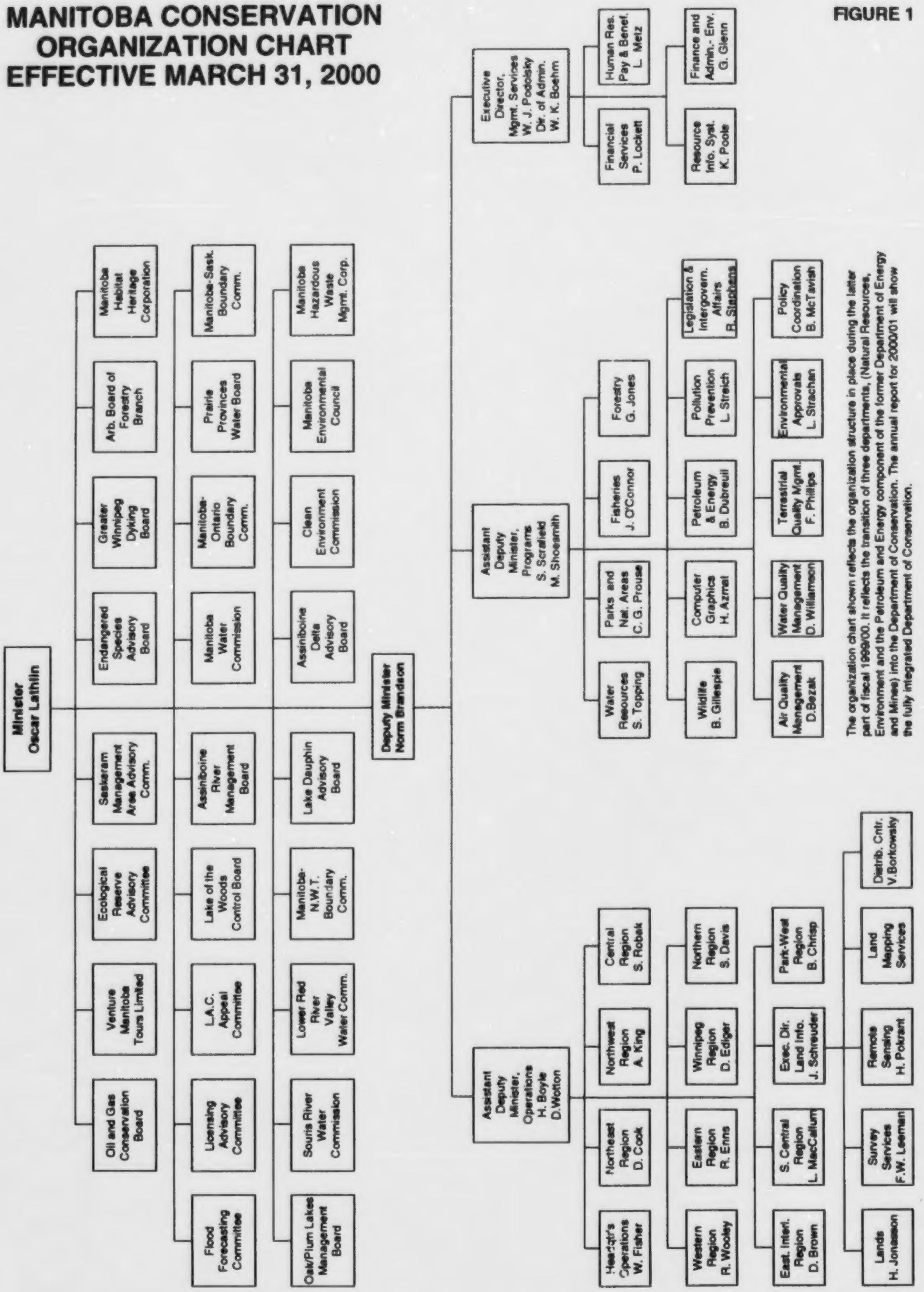
MANITOBA CONSERVATION ORGANIZATION CHART EFFECTIVE MARCH 31, 2000

FIGURE 1


Minister Oscar Lathlin
Endangered Species Advisory Board
Greater Winnipeg Dyking Board
Arb. Board of Forestry Branch
Manitoba Habitat Heritage Corporation
Saskeram Management Area Advisory Comm.
Ecological Reserve Advisory Committee
Venture Manitoba Tours Limited
Oil and Gas Conservation Board
Manitoba Water Commission
Manitoba-Ontario Boundary Comm.
Prairie Provinces Water Board
Manitoba-Sask. Boundary Comm.
Assiniboine River Management Board
Lake of the Woods Control Board
L.A.C. Appeal Committee
Licensing Advisory Committee
Flood Forecasting Committee
Assiniboine Delta Advisory Board
Clean Environment Commission
Manitoba Environmental Council
Manitoba Hazardous Waste Mgmt. Corp.
Lake Dauphin Advisory Board
Manitoba-N.W.T. Boundary Comm.
Lower Red River Valley Water Comm.
Souris River Water Commission
Oak/Plum Lakes Management Board
Deputy Minister Norm Brandson
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Financial Services P. Lockett
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Pollution Prevention L. Streich
Legislation & Intergovern. Affairs R. Stephens
Air Quality Management D.Bezak
Water Quality Management D. Williamson
Terrestrial Quality Mgmt. F. Phillips
Environmental Approvals L. Strachan
Policy Coordination B. McTavish
Assistant Deputy Minister, Operations H. Boyle D.Wotton
Headqtrs Operations W. Fisher
Northeast Region D. Cook
Northwest Region A. King
Central Region S. Robak
Western Region R. Wooley
Eastern Region R. Enns
Winnipeg Region D. Ediger
Northern Region S. Davis
East. Inter. Region D. Brown
S. Central Region L. MacCallum
Exec. Dir. Land Info. J. Schreuder
Park-West Region B. Chrisp
Lands H. Jonasson
Survey Services F.W. Leeman
Remote Sensing H. Pokrant
Land Mapping Services
Distrib. Cntr. V.Borkowsky

The organization chart shown reflects the organization structure in place during the latter part of fiscal 1999/00. It reflects the transition of three departments, (Natural Resources, Environment and the Petroleum and Energy component of the former Department of Energy and Mines) into the Department of Conservation. The annual report for 2000/01 will show the fully integrated Department of Conservation.

Chapter 1
Highlights

INTERNET HOME PAGE

Adding and improving information on the Department's Home Page on the Internet continues. The Home Page provides the latest news and links to information about many programs and activities. For example, current Environmental Proposals, ***Hunting*** and ***Fishing Guides***, and news from the Petroleum and Energy Branch is posted regularly, and a directory allows fast contact with staff. There are pages for the Environmental Library, a point of access to ***State of the Environment Reports*** and other public information, both electronically on the web, and physically, at 123 Main Street, Winnipeg.

The use of web pages by the public has risen steadily. For example, the Environmental pages (http://www.gov.mb.ca/environ) registered approximately 30,000 accesses per month by March, 2000, 50% above the year before. With amalgamation of Natural Resources and Environment, a major re-design of the various pages is in the works, leading to a more integrated site and more convenient access.

The Manitoba Conservation Home Page is at: http://www.gov.mb.ca/natres.

RESOURCE INFORMATION SYSTEMS

Corporate IT initiatives dominated as the Desktop Management Initiative, Better Methods/SAP, and the Year 2000 crisis all arose this year. The Branch ensured that transition to the new Government of Manitoba Desktop Management environment was completed with minimal negative effect on operations. Involvement in planning and coordination of the impending SAP implementation was provided by senior staff. Department-wide coordination of Year 2000 efforts were provided.

Although other activity was affected by the effort required for corporate objectives, major IT accomplishments were achieved in the following areas:

- An inter-departmental Crown Lands Registry Information System was contracted to a vendor and should result in a common system for both Natural Resources and Agriculture, for tracking Crown lands information and activity.
- An electronic Parks Campground Reservation System was implemented, using industry-leading software and local call-centre services.
- The Conservation Data Centre in Wildlife implemented the first departmental web-based application, providing global access to bio-diversity information.
- A new provincial Fire Management System was contracted to a vendor for customized development of a leading-edge solution to real-time fire management.

REGIONAL OPERATIONS

During the wildfire season, 615 fires burned 112,947 ha. Although fires numbered 90 above the 10-year average (525 starts), area burned was well below this average (358,425 ha.). The most serious fires occurred early (Manigotogan, St. Theresa Point areas) and late in the year (Cold Lake, Snow Lake, Grand Rapids areas). Testing of crop-spraying aircraft proved their potential as a suppression tool, particularly when lake ice hinders skimming water-bombers.

In co-operation with Manitoba Wildlife Federation, a new ***Hunter Education Manual*** was introduced.

Natural Resource Officers completed initial sidearm training at R.C.M.P. Training Academy, Regina.

In summer, 359 students were employed on projects under the Green Team program. In addition, 337 students were employed in communities under the Hometown Green Team program.

Pickerel production was up significantly on Lake Winnipeg and Lake Manitoba and, combined with higher prices, resulted in a buoyant fishery.

Pan American Games events at Birds Hill Provincial Park were a success, with lasting legacies: resurfaced roads, improved lake, and new equestrian cross-country track.

Through co-operation with Waterhen First Nation, Chitik Lake is now a Park Reserve, to be managed jointly. The wood bison herd here is estimated at 80 animals.

Elk populations in south Interlake have grown substantially, from about 50 in the late 60's, to over 1,100 animals.

A cooperative moose management committee, with First Nations, local wildlife associations and Pine Falls Paper Company, is working on a moose management strategy in Eastern Region. Similarly, an Integrated Woodland Caribou Management Committee implemented a monitoring program for the Atikaki/Berens range.

In Northeast Region, support and participation continued on several resource management boards.

Polar Bear Alert program at Churchill resulted in capture of 87 bears.

At Paint Lake, a new amphitheatre was completed and reorganization of marine parking and boat launching facilities was finalized.

In Northwest Region, co-operative moose management efforts with First Nations resulted in development of a brochure to outline responsibilities of aboriginal hunters in safeguarding local populations.

Campground improvements at Wekusko Falls, Reed Lake, Campers Cove, and Bakers Narrows were completed.

Saskatchewan River Sturgeon Management Board continued directing educational programs and management studies.

Fall fishery on Lake Winnipegosis increased 30%.

Spruce Woods Park Visitor Centre and Asessippi Ski Hill opened.

Public education regarding water licensing requirements was a major initiative in Western Region.

WATER RESOURCES

Significant resources were devoted to recovering from the 1997 Red River valley flood and preparing for future floods. Refurbishment of Red River Floodway, Portage Diversion and Assiniboine River dykes continued. Financial and technical assistance for homes and businesses in flood-prone areas continued. Dyking projects for several communities in Red River valley were coordinated. Inventory of flood-impacted wells in the Red River Valley was completed and groundwater quality programs were initiated to protect this valuable resource.

Efforts were made to help complete the final report of the International Joint Commission's Red River Basin Task Force on the 1997 Red River flood. The Task Force concluded that we must prepare for major floods equal to or greater than 1997. The report contains recommendations to improve flood preparedness, response and recovery from major floods.

A hydrodynamic model of the Red River valley, produced for the International Joint Commission (IJC), was handed over to the Province and was used to provide hydraulic inputs into several flood damage reduction studies.

With representation from Canada, Manitoba, City of Winnipeg and Rural Municipalities of Ritchot, Macdonald and Morris, the committee established to review operating rules of the Red River Floodway (in light of experiences gained during the 1997 Red River flood) completed and submitted its report. Only minor changes to the operating rules were recommended. Establishment of a Floodway Operation Advisory Board with membership from both senior governments and residents from Winnipeg and the valley was also recommended. The purpose would be to ensure fair application of the operating rules and communication of critical issues related to Floodway operation.

Planning for sustainable development in several watersheds and aquifer areas continued with stakeholders.

Recommendations from the Manitoba Water Commission and the International Joint Commission regarding the 1997 flood were implemented to the extent possible. Flood forecasting and monitoring capabilities were expanded.

Examination of water use and allocation issues continued toward improvement of licensing procedures and changes to ***The Water Rights Act***. Interim changes to the Act were prepared to clarify provincial jurisdiction and authority over drainage. Amendments to ***The Water Resources Administration Act*** were also prepared to help ensure that residents of the Red River basin are protected against future floods as large as the 1997 Red River flood.

Water Resources participated on a committee to draft legislation prohibiting transfer of water between Manitoba basins and bulk removal of water from basins. The result is Bill 6, ***The Water Resources Conservation and Protection and Consequential Amendments Act***, which received first reading.

PARKS AND NATURAL AREAS BRANCH

Chitek Lake and Poplar/Nanowin Park Reserve designations were extended for five years and consultation continued on eventual designation as Provincial Park. Preparation of the management plan for Atikaki continued, and management planning for Grand Beach was initiated.

Hayes River was nominated to the Canadian Heritage Rivers System.

Pan Am Games events at Birds Hill were run successfully on the newly completed and upgraded facilities. Spruce Woods Park Visitor Centre was officially opened on Parks Day, July 17, 1999. Development of an improved visitor centre at West Hawk Lake fish hatchery was initiated. Campground expansions were completed at Hnausa Beach, Brereton Lake, Big Whiteshell and Nutimik Lake. A development strategy for the south Whiteshell was completed.

Parks Reservation Service was expanded from 38 to 48 campgrounds and group-use sites were added to the service. Use increased significantly, to over 25,000 reservations.

Park attendance and campground use remained very high, with a notable increase in number of seasonal campsites sold. The fall camping program continued in selected parks.

POLICY CO-ORDINATION BRANCH

Northern Flood Agreement negotiations with Cross Lake First Nation were reopened and are progressing. Grand Rapids Forebay negotiations continue, as do negotiations on other flood issues and on Treaty Land Entitlement. The co-management agreement with Cormorant Community Council progressed to establishment of a resource management board.

The Branch, in part, represented the Department in a multi-department Lands Related Information System initiative, to develop a government-wide framework for managing lands-related information. This initiative, Manitoba Lands Initiative, offers an "in-house" approach to sharing GIS data across government.

FORESTRY

Pine Falls Paper Company began construction of Thermal-Mechanical Pulp mill, expected to be operational by mid-2001. The new mill will allow increased use of pine, and may facilitate some hardwood use. The Branch worked with Pine Falls Paper and First Nations to examine the company's proposed expansion and First Nations participation. Staff worked with PFPC to analyse the wood supply in support of their proposed expansion.

The Ecosystems Based Management (EBM) pilot project east of Lake Winnipeg is a first step towards ecosystems-based management. A socio-economic report was completed and the Science Team neared completion of an ecoregion profile. The Values Team developed and tested several methods for surveying stakeholder values and are preparing their report. The Project funded landuse studies by three First Nations communities.

Development of Manitoba Silvicultural Information System continued; it will track all forestry activities and provide current information to managers.

FISHERIES

As part of its educational strategy, the Branch developed a Fisheries Sustainable Development Internet web site. Information on the site integrates sustainable development into the Kindergarten to Grade 4 Science, *Manitoba Curriculum Framework of Outcomes* (K - 12). The site is a Manitoba first in integrating fisheries information into a science curriculum via the Internet. The site was promoted at provincial teacher workshops, and conferences, and highlighted at the Special Areas Group (Science) workshop.

As requested by the Prairie Provinces Water Board, the Instream Flow Needs Committee compiled instream flow methods and experiences from the prairie provinces and nearby United States jurisdictions. The final report recommends using either Tennant's or Tessmann's method as a first method to establish instream flow requirements to protect fish. The Branch is an active member of the Instream Flow Council, an international group of instream flow experts, and is participating in developing effective instream flow program policy and methodology.

The Fish Sustainable Development Strategy, lead by the Manitoba Round Table, continued and resulted in release of the *Workbook on Fish*. This *Workbook* contains draft policies and recommendations concerning sustainability, derived from focus-group discussions with stakeholders, businesspersons, Aboriginal peoples, and the public. An extensive and consultation/communications plan was developed to provide opportunities to comment on the draft policy objectives, policies, and recommended government actions. From the responses, the *What You Told Us*, Fish Strategy, was published at year-end.

The Manitoba Fisheries Enhancement Initiative (FEI) funds projects that protect or improve fish stocks or habitat. The largest number of projects funded were stream enhancement projects involving one or a number of techniques: riffle and pool placement, bank rehabilitation (fencing, resloping, rearmouring, revegetation, and offshore watering for cattle), and fishways. Nearly half of the stream enhancement projects were involved in the construction of two fishways; a riffle and pool fishway at Minnedosa Dam and a denil fish ladder at Grant's Old Mill on Sturgeon Creek. The other projects were related to education, population management, and lake enhancement. FEI encourages cooperation with other government and non-government agencies to ensure that fisheries values are incorporated into other sectors, such as agriculture, forestry, and highways, and that objectives of sustainable development are met.

FEI funding permitted construction of a pool and riffle fishway at the Minnedosa Dam. Partners for this large fisheries project included Minnedosa Fish Enhancement Committee, the Minnedosa Lake Rehabilitation Committee, the Minnedosa Parks Board, and the Little Saskatchewan River Game and Fish Association. The Friends of Rivers Lake also received FEI funding for four restoration projects along the shoreline of Lake Wahtopanah as well as one project site upstream of the lake on the Little Saskatchewan River. The project work was done in co-operation with landowners; its objective is to reduce sediment and nutrient loading from cattle watering.

WILDLIFE

- Public consultation was initiated on a Sustainable Development Strategy and revisions to ***The Wildlife Act***, to be completed by 2002.
- The Branch Website was developed, for activation during Wildlife Week 2000.
- The *Youth Hunting License* Package, with reduced fee, now includes deer and upland gamebirds.
- Mild winter conditions again engendered average-to-low winter mortality on most deer ranges.
- A spring season for snow geese in the north and early fall seasons in the south were introduced to overcome excessive numbers on fragile arctic nesting grounds.
- Deer hunting licence sales remained similar to previous years, resident bear license sales were down slightly, but non-resident sales were up.
- Interlake Elk Management Strategy was completed.
- Populations of barren-ground caribou are stable or increasing, while coastal herds are stable.
- The program monitoring incidence of Bovine TB in wild ungulates in Riding Mountain area continued, with only 3 out of over 1,000 elk tested found to be infected in the last three years.
- Aerial surveys financed by the York Factory Resources Management Board estimated 109 moose in their resource management area.

- A review of the Problem Beaver Control Program commenced; changes will be recommended for next year.
- Manitoba discontinued capture of wild elk; the Elk Seedstock Program ended.
- An urban goose working group was formed to investigate and draft a management plan; with particular emphasis on airport safety.
- Harvest levels for all furbearer species decreased due to mild winter and slow markets.
- A two-day workshop for aboriginal trappers provided information on terms of the EU-Canada Agreement on Humane Trapping Standards.
- Agreement was reached to protect all or part of 13 Wildlife Management Areas to standards of national Endangered Spaces Campaign.
- About 110 educators were trained to use Project WILD materials by staff and volunteers.
- Piping plover habitat was threatened by high water levels on West Shoal Lake.
- Total duck numbers increased while goose populations in south continued to prosper and expand their range. Spring grouse surveys indicated populations increased slightly.
- A wildlife viewing guide, ***Pelicans to Polar Bears - Watching Wildlife in Manitoba***, became a best seller in Manitoba.
- Numerous monitoring projects in Tall Grass Prairie Preserve continued. In mixed-grass prairie region, work focussed on the Carberry area, where 70 sites of better quality prairie were identified.
- Natural resource and bioinventories were completed and/or published for several Wildlife Management Areas, Heritage Marshes, and numerous southern areas.
- Discussion began on developing ***Naturescape Manitoba***, an educational package on native species and backyard project ideas.
- Partners-in-Flight Manitoba completed the Conceptual Plan of the Manitoba Landbird Conservation Plan, and began work on the Strategic Plan.
- Detailed reviews were held with Regional staff on Forest Management Guidelines for Wildlife.
- Field surveys were done in Hudson Bay Coastal Region, with range confirmation and extensions for numerous plant and mammal species.
- The Conservation status of numerous plant and animals species was reviewed, including several butterflies and gastropods. A preliminary field inventory of dragonflies was initiated. A boat survey of colonial waterbird use of Lake Winnipegosis was conducted.
- Red-sided garter snake numbers recovered considerably at Narcisse den sites after a die-off.
- Several caribou ranges, identified at risk, were priorized for research and monitoring. The Chitek Lake Wood Bison Herd numbers about 80 animals and appears to be expanding its range.
- Two pairs of peregrine falcons are known to have nested.
- Leopard frogs continue to recover from a dramatic decline in the mid 1970s and are now abundant in many marshes.

SUSTAINABLE DEVELOPMENT COORDINATION UNIT

Public consultations were held on the *Fish* and *Wildlife Strategies* to consider policies for protection and sustainable harvest. Reports were compiled from comments in 53 presentations and submissions and 347 questionnaires, resulting from 44 workshops with 869 Manitobans and a meeting with Natural Resource Co-management Boards. The *What You Told Us...Fish Strategy* was printed and distribution scheduled for April 2000. The *What You Told Us...Wildlife Strategy* is near completion and is also scheduled for printing and release in spring 2000.

The Sustainability Indicators Working Group drafted a set of sustainability indicators for a workbook to be released in spring 2000 as the main discussion document for public workshops. Other components of public consultation are an interactive Web site (www.susdev.gov.mb.ca/indicators) and a call for written submissions. The final indicator set will be the basis for ongoing sustainability reporting.

Support was provided to the Manitoba Youth Round Table for Sustainable Development's poster contest and for distribution, to all Manitoba schools, of their communications pamphlet and *Sustainable Development in the Boreal Forest*, a CD-ROM prepared by Grades 5 and 6 of Queenston School.

As part of the Demonstration Projects Strategy, staff coordinated the 7th Annual Sustainable Development Awards of Excellence, recognizing two individuals and seven organizations for outstanding achievements in sustainable development. In addition, Alice Chambers was recognized with the decade's second Honorary Patron of Sustainable Development Lifetime Achievement Award.

The Unit coordinated the 18-month Consultation on Sustainable Development Implementation (COSDI) multi-stakeholder initiative. The 18-member COSDI Core Group met 21 times to consider how to best implement sustainable development principles and guidelines into environmental management, licensing, land use planning, regulatory and other decision-making. The Core Group received input from a 60-member Advisory Committee at four workshops. The Core Group's *Final Report* was presented to government in June 1999.

The Capital Region Review was initiated to consider effectiveness of legislation, policy, and procedures that guide land use planning and development decision-making, and safe and efficient services to support implementation of the Capital Region Sustainable Development Strategy. The Unit provided secretariat, administrative, and research support for the Panel, their public meetings and production of the *Interim* and *Final Reports*.

The Unit initiated the Interdepartmental Committee on Climate Change to coordinate formulation of policy and dissemination of information on climate change. Staff also participated in the National Air Issues Coordinating Committee on Climate Change's formulation of a national strategy to meet Canada's emission reduction commitments. The Unit cooperated with Canada, Saskatchewan, and Alberta, to establish the Prairies Adaptation Research Co-operative to lead development of climate change adaptation strategies in the Prairie Provinces.

LAND INFORMATION CENTRE

Staff organized and completed commemorative naming of geographical features after the 37 Manitoban casualties of the Korean War. They participated at a cairn unveiling at Brookside Cemetery, Winnipeg, in September 1998, where 23 Commemorative Name Certificates were presented to their families, part of the Korea Veterans Association of Canada National Convention and Reunion.

Product Distribution launched the government's first credit-card-secured e-commerce site, **canadamapsales.com**, offering sales for all topographic maps.

Manitoba Geographical Names Program staff participated at two special presentation ceremonies, one at the British Commonwealth Air Training Plan Museum in Brandon where a Commemorative Name Certificate Display was presented on May 15th, 1999, and, another at a cairn unveiling ceremony at the Brookside Cemetery, Winnipeg, in June 1999, where two Commemorative Name Certificates were presented to their families.

POLLUTION PREVENTION BRANCH

- The stewardship program for used oil, filters and containers, completed its second year of operation with strong results, recovering nearly 80% of available used oil.
- A stakeholder process for developing a sustainable program for managing household hazardous waste resulted in a consensus report and recommendations to the Minister.
- The tire stewardship program is now recycling one tire for every tire sold and is considered one of the most successful programs of its kind in North America.
- The Regional Waste Management Task Force submitted its report, ***A Regional Solid Waste Management Action Plan and Recommendations***, proposing provincial vision for solid waste management that would minimize risk to health and the environment.
- A draft Memorandum of Understanding to demonstrate benefits of planning, developing and implementing integrated solid waste management activities in the Capital Region, was endorsed by Mayors and Reeves, including the City of Winnipeg.
- The Branch engaged in numerous partnerships and activities such as a ***Pollution Prevention Guide for Printers***, Metal Finishing Project, and an *Environmental Self-Assessment Checklist* to ensure sound environmental practices at golf courses.
- Manitoba amended ***The Ozone Depleting Substances Act*** to prevent, reduce and eliminate release of ozone-depleting substances into the atmosphere.
- The Branch engaged in two highly successful water efficiency pilots. A Manitoba Housing pilot resulted in 30% reduction in water use, seven months payback and yearly savings of $8,000 per building. A St. Boniface Hospital water re-use project resulted in a yearly savings of $70,000 and ten million gallons, with payback of less than nine months.

ENVIRONMENTAL QUALITY STANDARDS

- Prepared draft *Nutrient Management Strategy for Surface Waters in Southern Manitoba*,
- Prepared revisions to *Manitoba Surface Water Quality Objectives* (now *Manitoba Water Quality Standards, Objectives, Guidelines*),
- Provided technical support on such transboundary issues as proposed outlet from Devils Lake and the Garrison Project,
- Led Manitoba's input to a watershed management plan for Shoal Lake, Winnipeg water supply,
- Prepared 18 technical reports and brochures and delivered 52 presentations,
- Participated in the International Joint Commission's Red River Basin Task Force on Flooding.
- Sampled soils and vegetation at three permanent sampling sites near Flin Flon to determine effects of zinc smelter emissions on concentrations of metals in soils and plants, and to determine changes in plant biodiversity. The sites were established and first sampled 20 years ago. In 1998, sampling was conducted on sites to the southeast; whereas in 1999 monitoring added data from sites south of the smelter.
- Collected species composition, plant biodiversity, and chemistry data at a bog near Gull Lake.
- Completed baseline and initial start-up monitoring (birds, vegetation and soils) of aspen ecosystems near the Louisiana-Pacific Oriented Strand Board mill east of Minitonas.
- Completed a study of sulphur in soil and vegetation near an oil processing battery near Tilston regarding possible effects of flare gas.
- Monitored tree growth and health in black spruce and jackpine reforestation trials on soils contaminated with heavy metals from the Inco smelter, Thompson. The study, initiated in 1985, will determine if smelter emissions affect reforestation success and forest growth.
- Collected important data concerning the effects of air emissions from the Hudson Bay Mining and Smelting and Inco smelters on forest ecosystems. Effects on plant abundance and diversity will be determined by comparing these data to those collected twenty years ago on the identical plots.
- Following remediation of the former Domtar site, the site has been leased to Fort Whyte Centre and will be restored and maintained as a natural area.

- A Guideline for Environmental Site Investigations in Manitoba has been formalized and distributed to consultants and industry.
- A 12,000 litre fuel spill was caused when a remote MTS tower near Churchill blew down, depriving residents of communications for several days.
- Public Health Inspectors in partnership with Manitoba Health investigated suspected food-borne illness cases.
- Air monitoring program was established in Tilston area.
- An important new initiative was determination of plant diversity in a unique bog ecosystem near Gull Lake. These data are important in enabling the credible assessment of possible impacts of development, such as drainage, on bog succession. Another important study, using vegetation and soil monitoring of aspen ecosystems, found that flare gas emissions from an oil processing battery near Tilston did not cause vegetation injury or elevated sulphur concentrations in the soil.
- A set of draft sustainability indicators has been developed by the Sustainability Indicators Working Group, co-chaired by SOE Reporting and the Sustainable Development Co-ordination Unit, and put into a Workbook format, for public release in May 2000. The Workbook will be the main discussion document for public workshops held in June 2000. Other components of public participation process include an interactive Website (www.susdev.gov.mb.ca/indicators) and written submissions. The final indicator set agreed to by government will form the basis for ongoing Sustainability Reporting.

LEGISLATION AND INTER-GOVERNMENTAL AFFAIRS

The unit led development of ***The Water Resources Conservation and Protection and Consequential Amendments Act***, to prohibit bulk removal of water from Manitoba's part of the Hudson Bay drainage basin. The unit represented Manitoba in negotiations on the proposed national ***Accord for the Prohibition of Bulk Water Removal From Drainage Basins***, which would commit each government to steps similar to those taken by Manitoba.

The Unit, with Manitoba Rural Development, chaired the Consultation on Sustainable Development Implementation (COSDI), a multi-stakeholder consultation, producing a consensus report which recommends much greater emphasis on planning and public participation in environmental, landuse and resource decision-making.

CLEAN ENVIRONMENT COMMISSION

Under ***The Environment Act***, the Manitoba Clean Environment Commission provides a mechanism through which the public can participate in environmental decision making. The Commission conducts public reviews and hearings into matters of environmental concern and provides advice and recommendations to the Minister of Conservation. The Commission, while reporting directly to the Minister, is independent of the Department.

The Commission's legislative mandate requires publication of its own ***Annual Report***, with particulars on its mandate and operations. Copies can be obtained from the Commission at Box 21420, 284 Riemer Avenue, Steinbach, MB R0A 2T3, telephone 1-800-597-3556 (toll-free).

Chapter 2

Introduction

The Department of Conservation was established on October 5, 1999. It consists of the previous Departments of Natural Resources and Environment and the Petroleum and Energy component of the previous Department of Energy and Mines.

Manitoba Conservation has a mandate to protect, conserve, manage and sustain the development of the Province's forest, fisheries, wildlife, water, petroleum and energy, Crown land and park land resources; to protect the integrity of the environment and to ensure a high level of environmental quality for present and future generations. Through the integrated management of these resources, the Department is the lead agency responsible for providing outdoor recreational opportunities for Manitobans and visitors to the Province. The Department is also a major contributor to the economic development and well being of the Province, particularly at the community or regional level, through resource-based harvesting operations which it supports and through cooperation with other Departments in supporting their efforts in such areas as agriculture and tourism. Providing for the basic resource needs of subsistence users and protecting people and property from floods, wildfires and the adverse effects of other natural occurrences are the other two major roles of the Department. The Department is responsible for the administration of legislation and regulations pertaining to the Environment and public health; participating in the approval, licensing and appeals for industrial development activities; administration of waste reduction and pollution prevention activities and monitoring of environmental quality. The Department also educates Manitobans about the benefits and opportunities in energy efficiency and the sustainable development of the petroleum industry.

The organization is engaged in an integration process to merge the operations of the former Departments of Natural Resources and Environment and the Petroleum and Energy program of the former Department of Energy and Mines. The integration review process was not concluded as of March 31, 2000.

FORMERLY MANITOBA NATURAL RESOURCES

Chapter 3

Administration and Finance

Minister's Salary and Executive Support

The executive support group administers the Department such that natural resources are used, managed, and protected to maximize social and economic benefits to Manitobans, while ensuring sustained viability for future generations.

Table AS.1

12-1(a) Minister's Salary
12-1(b) Executive Support

Expenditures by Sub-appropriation	Actual 1999/00	Estimate 1999/00		Variance Over/(Under)	Expl. No.
	$	FTE	$		
Total Salaries and Employee Benefits	617.5	9.00	689.0	(71.5)	
Total Other Expenditures	112.5		83.8	28.7	

Administrative Services

Administrative Services provides offices for the Assistant Deputy Ministers and the Executive Director of Management Services, to manage programs on behalf of the Minister and Deputy Minister, effectively and efficiently. The section also directs the North American Waterfowl Management Plan through Manitoba Habitat Heritage Corporation. The warehouse manages general-purpose and fire-suppression equipment. Through the Executive Director's office, Workplace Safety and Health, Risk Management, Records Management and Freedom of Information and Personal Privacy programs are managed.

Workplace Safety and Health

Regionalized Workplace Safety and Health/Hearing Conservation programs resulted in 633 staff participating in WSH courses and 725 staff screened for hearing conservation. Regional Industrial Safety Officers (RISO's) received instructor training through Manitoba Safety Council's Off Road Vehicle Operator course. This course is now available to all staff through RISO's. Suppliers were identified and first aid courses conducted to meet a new Regulation. Staff attended the Coast Guard-approved Boat Safety and Operator course and made recommendations as to feasibility for training departmental boat operators.

Warehouse Operations

The Natural Resources Equipment Depot is central storage and mobilization point for all Resource Branches, Surveys Branch and Fire Operations Centre. During emergencies such as fire and flood, it becomes logistical support base for all equipment.

Risk Management

The section helps identify situations that could disrupt program activity or result in unexpected losses, assists in evaluating hazards in programs and facilities, and assists in developing and priorizing risk-control measures to reduce or eliminate hazard.

There were 59 liability incidents, involving payments of $761 and 35 claims for property damage, for which payments totaled $45,922. Total building/property evaluations reported for insurance purposes were $106,904,100.

Records Management Program

Records Authority Scheduling was completed for Manitoba Water Commission. Scheduling of records continues for Flood Proofing Program, Sustainable Development Coordination Unit, and Water Resources Branch. Review of Wildlife Branch records schedules is ongoing. A complete department review will be undertaken as a consequence of integration with the former Manitoba Environment, and Petroleum and Energy Branch. A total of 1,882 boxes of inactive records were sent for final disposition to Provincial Records Center/Archives.

Freedom of Information and Protection of Privacy

There were 55 requests actioned under ***The Freedom of Information and Protection of Privacy Act***. A program of compliance commenced with this new legislation in areas of notifications, use of personal information, and updating of personal information banks. Under the Privacy Section of the Act, the Department has become proactive in maintaining a balance between an individual's privacy and the public's right to know. Staff was trained to ensure conformance with the Act's requirements.

Table AS.2
12-1(c) Administrative Services

Expenditures by Sub-appropriation	Actual 1999/00 $	Estimate 1999/00 FTE	Estimate 1999/00 $	Variance Over/(Under)	Expl. No.
Total Salaries and Employee Benefits	725.5	12.50	747.4	(21.9)	
Total Other Expenditures	325.0		317.8	7.2	

Financial Services

The Branch provides financial services to the Executive, program managers and operational staff, undertakes comptrollership, ensures that the public has convenient access to hunting and fishing licences, and park vehicle permits, and co-ordinates such support services as the vehicle fleet, employee parking, financial delegations of authority, asset management and employee housing.

The Branch coordinated departmental implementation of financial, procurement and asset management components the new corporate SAP departmental accounting system. Distributed processing of accounts payable and associated transactions was successfully implemented at five Region and 18 District offices.

Licensing Section managed a network of 852 private and 130 departmental licence vendors by which convenient access was provided to the public for angling, hunting, migratory waterfowl, Park Vehicle Entry, trapping and various other licences and permits. Total sales were 572,822 licenses and permits, for $10,954,912. Vendor activity included 97 new appointments, 83 discontinuances, 7 suspensions and 24 reinstatements. A total of 792 private vendors are in rural areas.

Where license availability is limited, draws to allocate hunting opportunities for Manitoba residents are conducted each year. A multi-level priority licence draw system was used; of 11,458 applicants, 6,141 were awarded licences.

Revenue Management Section assisted development of the accounting module for the new Crown Land Information System, and implemented the new corporate point-of-service system at the Winnipeg cashier location. The Section processed 16,239 remittances, from 153 revenue sources, totalling $79,499,601. The Winnipeg cashier's office made about 7,080 direct sales. About $3,671,495, in over 7,482 invoice payments, was processed by the Bank of Montreal, allowing for prompt deposit of funds and electronic updating of client records. Credit cards were accepted at 40 locations, of which 32 accept debit cards.

The Public Information Line received 65,036 calls. Staff also responded to about 62,100 in-person requests for information and assistance, as well about 5,401 requests by mail and Internet to supply publications and resource materials.

Budget Management Section led implementation of the SAP accounting system in the Department, developing all financial coding, reporting, general ledger implementation and reconciliation, and advising staff on SAP financial transactions. The Section maintained control on expenditures and revenues, enabling the Department to complete the fiscal year within budget and meet budgetary targets.

Disbursement Section transitioned to SAP and processed about 25,000 procurement transactions and 34,500 payments from 48,000 documents.

The Contract Management Section administered over 500 new contracts for construction, services, and consulting, including advising program managers on contract technicalities, tendering, electronic tendering, bid opening, insurance, bonding and progressive payments. 100 grants to organizations, totally $2,808,334, were paid and monitored.

Table AS.3
12-1(d) Financial Services

Expenditures by Sub-appropriation	Actual 1999/00 $	Estimate 1999/00 FTE	Estimate 1999/00 $	Variance Over/(Under)	Expl. No.
Total Salaries and Employee Benefits	1,316.4	32.33	1,301.8	14.6	
Total Other Expenditures	347.0		377.2	(30.2)	

Human Resource Management

Human resource services for four departments (Industry, Trade and Mines, Highways and Government Services, Conservation, and Aboriginal and Northern Affairs) are conducted by one consolidated unit under one Director. The Unit provides leadership and support in human resource management and pay and benefit services, under delegated staffing and classification agreements with the Civil Service Commission.

Services include human resource planning and management, recruitment and staffing, compensation and benefits, job classification, labour and employee relations, training and development, performance management, and employment equity.

Accomplishments - all Departments

- Comprehensive pay and benefits services for over 6,000 employees,
- Significant support to Better Methods through staff secondment and human resources,
- Human resource information system (SAP) implemented by April 1, 1999, and,
- Completion of competency-based HR model.

Accomplishments - Conservation

- Staffing activity included 9 competitive appointments, 58 direct appointments and 54 term extensions. Guidance and advice was provided on Departmental Employee staffing, which has been delegated to managers; there were 154 appointments to Departmental Employee positions,
- Assisted in developing and implementing the Youth Employment (Green Team) Program, employing 359 youths at 51 locations,
- Employees attended 538 training courses: 69 conducted by Organization and Staff Development, 35 at educational institutions, and 434 by private vendors,
- Provided guidance and advice to management on labour relations, including appropriate discipline, and negotiating settlements to resolve issues before the formal grievance stage. There were seven formal grievances,
- Classification activity included 46 position classification reviews, of which seven were appealed, and,
- Participated in the Aboriginal Public Administration Program.

Table AS.4
12-1(e) Human Resource Management

Expenditures by Sub-appropriation	Actual 1999/00	Estimate 1999/00		Variance Over/(Under)	Expl. No.
	$	FTE	$		
Total Salaries and Employee Benefits	785.9	15.00	712.4	73.5	
Total Other Expenditures	113.3		141.3	(28.0)	

Resource Information Systems

The Branch provides internal information technology service and expertise. With the reorganization which combined the former departments of Environment, Natural Resources and elements of Petroleum and Energy, an integration study was conducted and recommendations provided to the department executive to integrate information technology staff and services. During the course of the year the branch assisted in the following accomplishments:

- Year 2000 efforts were completed culminating in the successful rollover to the year 2000. Over 100 business applications and 360 desktop application software packages were investigated and certified, refurbished or replaced, in preparation for the calendar rollover which produced no ill effects. Highlights include:
- Implementation of a new Satellite Image processing system.
- Upgraded the Point of Sale application supporting the Map Sales and Distribution.
- All departmental hardware, operating systems and application servers were investigated and refurbished where required to insure problem free transition.
- Post rollover application testing to ensure systems integrity.
- Fire Management Information System was upgraded and deployed province wide. The system awarded a contract to a vendor to produce a Fire Information internet web page to provide public access to Wildfire status, danger levels and statistics on a daily basis.
- The Crown Lands Information System has continued development. Integration and rollout to the Crown Lands user community has started. Special attention has been paid to wide-area performance and user function for those user groups outside of the Neepawa Office.
- FISH Database project PHASE 1 was completed. Database re-engineering and user interface functionality to a "common" FISH data repository has been defined, tested and implemented.
- A high-capacity server has been purchased to store the Spatial Data used at 200 Saulteaux Crescent. State-of-the-art spatial data management toolkits have been installed for demonstration and proof of concept purposes.

- Completed the transition of desktop computers to a standardized, homogeneous environment for those offices not transitioned in the previous fiscal year. The Branch ensured that this process was managed, co-ordinated and completed with minimal impact to operations. Intended results were accomplished with all areas of the Department contributing to the overall success of transition.

- The first POS (Point of Service) location within the department was successfully implemented within the Revenue Branch of 200 Saulteaux Crescent. Future expansion to other departmental offices is anticipated.

- As part of the transition to the managed environment, the Department deferred the transition of three large Water Resources database applications until the later part of the fiscal year. The Branch, together with Water Resources, successfully transitioned these major database applications in addition to upgrading them as required for Year 2000.

- A new Forestry Branch Silviculture Information System contract was awarded to a vendor, and a working system was delivered. Implementation at head office and in the Departments five regions is currently underway.

- Use of the internet as a communications medium continues to increase.

- EMS evaluation was completed and implementation planning has begun.

- Modifications and maintenance to the Water Quality System.

- Clean up of data and modifications was begun for the Drinking Water System which was recently converted to MS Access in conjunction with the federal government

- Assistance was provided to define data download requirements for tendering a new lab contract.

Table AS.5
12-1(f) Resource Information Systems

Expenditures by Sub-appropriation	Actual 1999/00	Estimate 1999/00		Variance Over/(Under)	Expl. No.
	$	FTE	$		
Total Salaries and Employee Benefits	844.3	15.00	894.6	(50.3)	
Total Other Expenditures	153.2		156.1	(2.9)	

Chapter 4

Regional Operations

Regional Operations Division co-ordinates delivery of programs and services at community level, including:

- Field activities for resource management,
- Enforcement of legislation,
- Operation of Provincial Parks, waterways and water control works,
- Emergency response to forest fires, floods and drought,
- Co-ordination of hunter-safety training and guide licensing, and,
- Problem wildlife control.

Programs and activities are delivered in five Regions, divided into Districts.

Headquarters Operations

Headquarters directs and co-ordinates programs, ensuring cost-effective use of resources through operational guidelines, organizational standards and controls, liaison with resource Branches and external agencies, monitoring effectiveness, financial controls, and reporting.

Staff continued to improve relations and information flow with Manitoba Justice, specifically with Magistrates, Crown Counsel, and Constitutional Law Branch. *Legislation Manuals* were revamped to be more user-friendly and less time-consuming for field staff to maintain. A complete review of the Guide Licencing Program was undertaken, including a Guideline and new exam for first-time applicants. A total of 1,447 *Guide Licences* were issued, the same as last year.

Natural Resource Officers (N.R.O.s) completed initial sidearm training at R.C.M.P. Training Academy, Regina, using N.R.O. and R.C.M.P. trainers. There were 43 Park Patrol Officers given basic training in hospitality, tactical communication, defensive tactics, firearm use, legislation, and administrative forms, prior to assignment. Annual in-service for all 140 N.R.O.'s included training in search and seizure, legislation, and arrest-and-control scenarios. Other courses delivered to Officers and other staff included cross-cultural awareness, leadership skills, and Park management.

Tables RO.1 to RO.3 show common violations. Table RO.4 is a 10-year comparison of prosecutions for wildlife, fisheries, Parks, and migratory-bird offences. Table RO.5 shows prosecutions and warnings for all violations.

Table RO.1
Common Violations under *The Provincial Parks Act*, 1999-2000

Offence	Prosecutions	Warnings	Total Offences	Evictions
Cause Disturbance	111	199	310	268
Unlawful Vehicle Operation	35	137	172	5
Pet Off Leash/On Beach	10	23	33	0
Have/Leave Unregistered Vehicle	2	26	28	0
Fail to Maintain Campsite	11	16	27	1
Damage Park Property	10	16	26	2
Have Liquor When Prohibited	16	6	22	18
Illegal Camping	7	13	20	0
Disobey an Officer Or Sign	8	7	15	1
Other	12	47	59	0
Total	**222**	**490**	**712**	**295**

Table RO.2
Common Violations under *The Wildlife Act*, 1999-2000

Offence	Prosecutions	Warnings	Total Offences
Loaded Firearm in Vehicle	70	5	75
Hunt on Private Land Without Permission	62	9	71
Hunt or Discharge Firearm From Road	38	2	40
Fail to Tag	22	14	36
Hunt Without Licence	14	7	21
Fail to Wear Orange	12	9	21
Nightlighting	19	0	19
Possess Illegally Taken Wildlife	12	0	12
Other	96	67	163
Total	**345**	**113**	**458**

Table RO.3
Common Violations under *Fisheries Act* and *Freshwater Fish Marketing Act* (Canada), and *The Fisheries Act* (Manitoba), 1999-2000

Offence	Prosecutions	Warnings	Total Offences
Use Barbed Hook	376	33	409
Exceed Daily or Possession Limit	176	18	194
Possess Unidentifiable Fish	29	85	114
Fish Without Licence	73	29	102
Fail to Carry or Produce Licence	27	69	96
Use Too Many Lines or Hooks	62	3	65
Fish During Closed Time	10	26	36
Violate Condition of Licence	14	22	36
Possess Undersized Fish	7	16	23
Fish With Unmarked Gill Nets	4	12	16
Leave Decayed Fish in Net	11	3	14
Other	57	55	112
Total	**846**	**371**	**1217**

Table RO.4
Comparison of Wildlife, Fisheries, Parks and Migratory Birds Prosecutions, 1990-2000

Fiscal Year	Wildlife	Fisheries*	Parks	Migratory Birds
1990-1991	739	1,033	268	77
1991-1992	816	1,191	226	58
1992-1993	937	1,000	180	20
1993-1994	874	898	253	18
1994-1995	640	1,033	142	85
1995-1996	395	741	185	18
1996-1997	441	976	173	26
1997-1998	421	846	171	9
1998-1999	278	965	248	6
1999-2000	337	833	219	36

*** Includes all Fisheries Acts and Regulations found in Table RO.3**

Table RO.5

Record Of All Violations, 1999-2000

Acts	Prosecutions	% Convicted	Warnings	Total Offences
Boating Restrictions	-	-	2	2
Criminal Code	-	-	6	6
Crown Lands	22	75	42	64
Environment	23	95	5	28
Forest	14	75	14	28
Fisheries (Canada	741	83	276	1,017
Fisheries (Manitoba)	105	80	95	200
Highway Traffic	79	86	144	223
Liquor Control	290	95	27	317
Migratory Birds	36	85	5	41
Off Road Vehicle	18	100	9	27
Provincial Parks	222	82	490	712
Small Vessels	-	-	2	2
Wildfire	18	80	15	33
Wildlife	345	75	113	458
Water Rights	3	0	19	22
Total	1,916	84	1,264	3,180

Total Fines: $181,205.34 and Costs: $48,033.00 for 1999-00

Hunter and Firearm Safety Training Program

The Manitoba Wildlife Federation continues to administer and deliver the Hunter and Firearm Safety Training Program. Approximately 245 active instructors graduated 2,068 students, 261 students above 1998.

Since the program began in 1964, 132,006 students have been trained (Table RO.6). Table RO.7 shows firearm incident statistics, by five-year average since 1964. Table RO.8 provides statistics on firearm incidents and fatalities over the last 10 years. (*Non-hunting incidents* refer to incidents in the home, children playing with firearms, and the like).

A new ***Manitoba Hunter Education Manual*** was introduced.

Table RO.6

Hunter and Firearm Safety Program, 1990-1999

Year	Students	Total to Date	Instructors Certified
1990	2,720	112,086	21
1991	2,543	114,260	26
1992	2,651	116,881	19
1993	2,685	119,566	41
1994	2,256	121,822	45
1995	2,381	124,203	18
1996	2,115	126,318	11
1997	2,101	128,419	8
1998	1,807	130,226	24
1999	2,068	132,006	15

Table RO.7
Firearm Accidents, 1964-1998: 5-Year Averages

1964-68	64
1969-73	56
1974-78	54
1979-83	43
1984-88	26
1989-93	20
1994-98	9

Table RO.8
Firearm Accidents, 1990-1999

	Accidents			Fatalities		
Year	Hunting	Non-Hunting	Total	Hunting	Non-Hunting	Total
1990	12	10	22	0	3	3
1991	10	9	19	1	1	2
1992	12	9	21	1	0	1
1993	5	8	13	0	0	0
1994	4	5	9	1	1	2
1995	9	6	15	0	0	0
1996	6	2	8	1	0	1
1997	2	6	8	0	2	2
1998	4	2	6	1	0	1
1999	6	5	11	3	1	4

Hunter-Killed Livestock Compensation Program

The program compensates farmers for livestock accidentally shot by hunters. This is done to encourage farmers not to post their land "no hunting". Six claims qualified for compensation for a total of $5,670.00. Table RO.9 lists claims over the last 10 years.

Table RO.9
Hunter-Killed Livestock Compensation Program 1990-91 to 1999-00

Year Paid	Claims	Claims Paid	Total Paid	Average
1990-91	5	3	2,180.00	727
1991-92	7	4	3,241.00	810
1992-93	7	6	8,001.65	1,334
1993-94	3	3	2,570.00	857
1994-95	9	7	11,850.00	1,693
1995-96	3	2	4,265.00	2,132
1996-97	4	4	9,800.00	2,450
1997-98	2	2	2,250.00	1,125
1998-99	7	6	9,532.55	1,589
1999-00	9	6	5,670.00	945

Problem Wildlife Complaints

Wildlife Branch was assisted in co-ordination of funding and procedures for problem wildlife complaints (Table RO.10): 4,483 complaints were received, up 3,913 from last year.

Table RO.10
Problem Wildlife Occurrences, 1999-2000

Species	Region							
	NE	NW	E	C	W	HQ	Species Total	% of Total
Beaver	6	12	61	92	109	62	342	8
Black Bear	64	54	470	302	207	2	1,099	25
Polar Bear	193	0	0	0	0	0	193	4
Big Game	0	3	15	74	255	56	403	9
Wolf	6	21	72	59	80	0	238	5
Migratory Birds	1	21	26	192	285	28	553	12
Other	22	29	170	397	775	262	1,655	37
Total	292	140	814	1,116	1,711	410	4,483	100

Winnipeg District

The Elm ski trail at Beaudry Park was rerouted due to riverbank erosion; the ski shelter on the trail was also restored. Restoration of tall grass prairie continued, with approximately 24 ha. seeded. Seeding north of P.R. 241 was completed. Ski trails were used for only two months due to late snow cover and early spring breakup. At St. Norbert Park, Moody House was cleaned, emptied out and slated for demolition due to severe flood damage. The trapper worked until December 17, 1999 and captured 185 problem raccoons and 69 beaver. Deer complaints were fewer in winter again, due to lack of snow and mild weather.

Special Investigations Unit

Due to need expressed by Regional staff, protocols, a reporting structure, and position functions were developed to better service rural areas. Two major undercover operations were successfully completed, one against illegal waterfowl hunts (a Joint Force Operation with Environment Canada and U.S. Fish and Wildlife Service), the other against non-resident penned elk hunts.

Turn-in-Poachers and Report Forest Fires Telephone Line

The toll-free telephone service (1-800-782-0076), to combat illegal harvest of fish and wildlife, received 625 calls, resulting in 70 prosecutions and 23 warnings. A total of 133 forest fires were reported.

Table RO.11
T.I.P. Calls by Region, 1999-2000

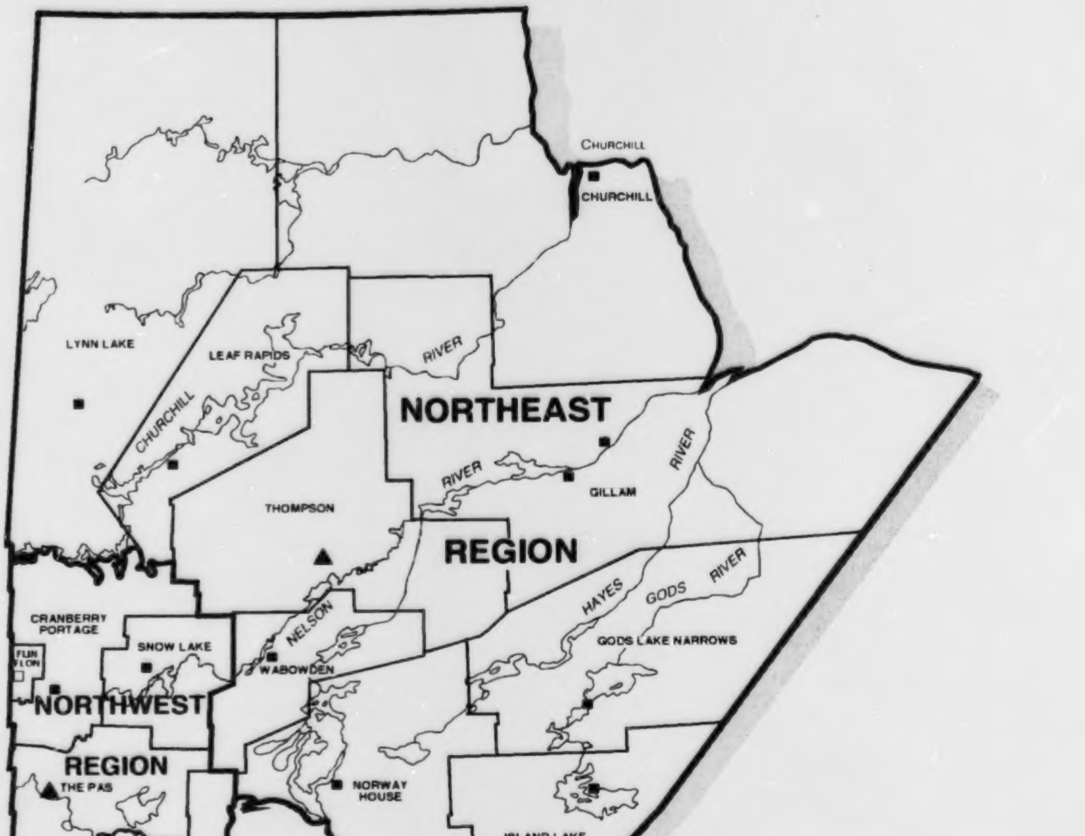
Region	Number of Calls					Number of Charges			
	Fish	Wildlife	Other	Fire	Total	Fish	Wildlife	Other	Total
Headquarters	9	34	0	0	43	4	3	0	7
Central	26	165	4	9	204	9	8	0	17
Western	36	186	3	8	233	2	28	0	30
Eastern	14	116	3	46	179	5	4	3	12
Northwestern	9	11	2	33	55	1	3	0	4
Northeastern	3	4	0	37	44	0	0	0	0
Total	97	516	12	133	758	21	46	3	70

Table RO.12
T.I.P. Calls by Year, 1991-1992 to 1999-2000

	'91-92	'92-93	'93-94	'94-95	'95-96	'96-97	'97-98	'98-99	'99-00
Calls Received	1,085	879	925	974	904	714	640	695	758
For Information	219	116	46	103	91	41	39	24	28
Calls Actioned	508	492	520	500	296	316	302	298	321
Prosecutions	177	131	132	127	156	68	74	74	70
Warnings	15	20	33	22	14	11	16	12	23

Table RO.13
12-2(a) Headquarters Operations

Expenditures by Sub-appropriation	**Actual 1999/00**	**Estimate 1999/00**		**Variance Over/(Under)**	**Expl. No.**
	$	**FTE**	**$**		
Total Salaries and Employee Benefits	1,436.8	34.73	1,478.5	(41.7)	
Total Other Expenditures	1,260.0		1,359.9	(99.9)	


MANITOBA NATURAL RESOURCES
REGIONAL OPERATIONS
LEGEND
REGIONAL BOUNDARY
DISTRICT BOUNDARY
REGIONAL OFFICE
DISTRICT OFFICE
NORTHEAST REGION
NORTHWEST REGION
CENTRAL REGION
EASTERN REGION
WESTERN REGION
CHURCHILL
CHURCHILL
LYNN LAKE
LEAF RAPIDS
CHURCHILL
RIVER
THOMPSON
GILLAM
RIVER
RIVER
HAYES
GODS
RIVER
NELSON
GODS LAKE NARROWS
CRANBERRY PORTAGE
SNOW LAKE
FLIN FLON
WABOWDEN
THE PAS
NORWAY HOUSE
ISLAND LAKE
GRAND RAPIDS
MAFEKING
LAKE
WINNIPEGOSIS
LAKE WINNIPEG
LAKE WINNIPEG EAST
SWAN RIVER NORTH
SWAN RIVER SOUTH
GYPSUMVILLE
WINNIPEGOSIS
ROBLIN
GRANDVIEW
ASHERN
HODGSON
RIVERTON
BISSETT
DAUPHIN
GIMLI
GRAND BEACH
PINE FALLS
L. MANITOBA
LUNDAR
WPG. BEACH
LAC DU BONNET
ASSINIBOINE R.
SHOAL LAKE
NEEPAWA
SELKIRK
PORTAGE LA PRAIRIE
R.
BEAUSEJOUR
STONY MOUNTAIN
WEST HAWK
VIRDEN
BRANDON
CARBERRY
WPG.
HADASHVILLE
FALCON LAKE
KILLARNEY
MANITOU
RED
STEINBACH
SPRAGUE
TURTLE MOUNTAIN
MORRIS

Northwest Region

Regional headquarters at The Pas and five District offices administer and manage natural resources, Park facilities, and infrastructure.

Enforcement

Natural Resource Officers conducted patrols through the year to ensure compliance with legislation. A total of 4,197 anglers were checked, primarily in June-July and January-April. Voluntary closure continued on Cedar Lake, but activity elsewhere resulted in 273 commercial and 125 domestic nets being checked. Timber inspections were up slightly, with 190 conducted on Tolko harvest areas. Officers checked 945 big game and bird hunters. There were 89 subsistence hunters checked, 50% below last year.

All officers completed sidearm training. Five roadside fish and wildlife check stations were operated on major highways, including a 3-day multi-agency operation on Highway #6 near Grand Rapids. There were 2,274 vehicles stopped and 26 resource violations detected. The public support for check stations continues.

Fisheries

Saskatchewan River Sturgeon Management Board comprises representatives from Manitoba and Saskatchewan governments, native communities, fishermen's associations, and interested industry. The Board continues to direct management studies and education programs. Besides index netting and tagging studies, 43,000 eggs were harvested, cultured and stocked out in Saskatchewan River as fingerlings and fry. Some fry were marked with coded wire tags to evaluate stocking.

A management plan for Wekusko Lake fishery was developed with stakeholders. The walleye fishery declined seriously in recent years. To recover and protect walleye stocks, several initiatives were implemented: reductions in creel and size limits, reductions in commercial net quotas, area closures to protect pre- and post-spawning populations, and habitat assessment.

Winter commercial fishing production was below last year. Walleye and whitefish showed slight declines while pike and mullet dropped 37% and 27%, respectively. Summer commercial fishing was 15% above last year. Walleye production was up 41% and northern pike increased 14%. Whitefish production declined by 8%. Mullet continued to be a bonus for northern fishermen, despite poor spring harvest. Renewed interest in whitefish roe is also a bonus; the market may expand to other species.

Forestry

Reviewing, approving, and monitoring Tolko's harvest continued to be a major activity. Besides cutting, Tolko conducted site preparation, tree planting, and stand-tending in all districts. Staff ensured that activities conformed to Tolko's Annual Harvest and Renewal Plan.

Forestry Branch was assisted with a stem analysis study, including establishing new plots and collecting and analyzing data.

Besides preparing 189 ha. for planting in 2000, review of 2,468 ha. of not satisfactorily regenerated forest lands was completed, and regeneration status updated for Forestry Branch.

Provincial Parks

Campsite leveling and enlargement was completed at Wekusko Falls, at Reed Lake in Grass River Park and at Campers Cove in Clearwater Lake Park. More campsites were electrified at Campers Cove and electrical service for 15 sites at Bakers Narrows was upgraded. At Gyles in Grass River, toilets were upgraded and the rock-fill pier (damaged by ice) was replaced with a floating dock.

Water Resources

Spring drainage in Pasquia Project comprised 1,404 hrs. of pumping: Polder 2 (34,560 a.), required 735 hrs., Polder 1 (21,568 a.), required 433 hrs, Polder 3E (23,040 a.) required 236 hrs. Pumping operated April 9 - 27, 1999. Cool temperatures and spring showers delayed full-scale seeding in Carrot River valley until mid-May, but timely summer rains and dry fall produced earlier harvest and above/well above yields. Forage and hay crop yields were well above average.

Provincial waterway and dyke maintenance were completed by mid-October in Pasquia and Grace Lake areas; focus was on drain clean-outs, brushing, mowing, and upgrading culverts.

Construction of the new pumping station near The Pas was deferred until 2000. Purchase of additional machinery and materials was initiated to further the project to construction stage.

Repairs were undertaken at Snow Creek Dam at Snow Lake. Fractured rock at the north abutment required drilling and grouting to seal excess leakage around the backwall.

Lake levels dropped significantly by end of summer, due mainly to lower precipitation and higher temperatures. Most lakes remain in mid-desirable range.

Five Authorization Permits were issued, seven drainage complaints were investigated and resolved, and two Water Rights Licenses were reviewed. Numerous concerns were addressed about low lake levels.

Wildlife

Monitoring of radio-collared woodland caribou in Kississing–Naosap Lakes area continues to determine critical habitat requirements and develop forest harvest recommendations. Aerial survey of GHA 7A estimated moose populations and determined important wintering areas, to assist season-setting and forest-harvest planning. Cooperative management with First Nations produced a brochure outlining responsibilities of aboriginal hunters in safeguarding moose populations, which was distributed to several First Nation communities. A study of radio-collared black bears in Flin Flon area continues with preliminary results indicating adults, relocated from refuse pits, travel considerable distance to return to food source.

Table RO.14
12-2(b) Northwest Region

Expenditures by Sub-appropriation	Actual 1999/00	Estimate 1999/00		Variance Over/(Under)	Expl. No.
	$	FTE	$		
Total Salaries and Employee Benefits	1,934.1	42.15	1,968.2	(34.1)	
Total Other Expenditures	688.6		689.9	(1.3)	

Northeast Region

Regional headquarters at Thompson and nine District offices (Churchill, Gillam, Thompson, Wabowden, Lynn Lake, Leaf Rapids, Norway House, Island Lake, and Gods Narrows) administer and manage natural resources, Park facilities, and infrastructure.

Support and participation continued on Nelson House Resource Management Board, Split Lake Resource Management Board, York Factory Resource Management Board, Norway House Resource Management Board, Nelson River Sturgeon Co-Management Board, Beverly and Qamanirjuaq Caribou Management Board, and Wapusk National Park Management Board.

Integrated Resource Management Team met regularly to evaluate land and resource-use applications.

Land management and inquiries remain at usual levels. Recreational cottage interest and activity remains high, and leads in the area of Permit issue. Unauthorized Crown land enforcement was less than previously.

Winter road season was unusually short due to mild weather. Roads to Brochet, Lac Brochet and Tadoule Lake were transferred to Manitoba Highways and Government Services, so that the Norway House to Island Lake route is the sole winter road administered by Conservation. The new road to Tadoule opens hunter access to caribou wintering grounds; harvest monitoring was initiated.

A total of 446 *Timber Permits*, 129 *Work Permits*, 174 *Burning Permits*, and 15 *General Fishing Permits* issued.

Enforcement

Officers checked 1,824 anglers, 913 hunters (520 big game, 275 migratory bird, 118 upland game bird), 172 commercial fishermen, and 71 domestic fishermen. Staff inspected timber operations and most remote lodges, outcamps and tent-camp sites, and monitored campers and day-users in Parks, resulting in 70 prosecutions and 113 warnings.

Fisheries

Commercial fisheries performed well. There were no significant problems with any major fishery.

Concern among commercial fishermen about operation of Freshwater Fish Marketing Corporation (FFMC) continued, but appointment of a new President provided opportunity to address concerns.

The Island Lake exemption to marketing through FFMC continued, although the three-year trial period has ended. A federal review of the exemption was completed, but did not result in any changes.

Fish stock assessments focused on Setting and Paint Lakes on Grass River System. These were completed in conjunction with assessment on Wekusko Lake in Northwest Region. Comparing results from these three Grass River lakes allowed more definite conclusions. Setting Lake walleye stocks were found to be depressed and a plan to improve the fishery will be developed with users.

A consultant completed review of the first five years of Nelson River Sturgeon Co-Management Board programs. The review was favourable and made recommendations which the Board is implementing. Most relate to improving communications with users. The Board is concentrating on sturgeon stocking to enhance populations, but is hampered by scarcity of spawning sturgeon.

Forestry

A total of 286 fires consumed slightly over 35,636 ha. in the Protection Zone.

Losses of merchantable timber in Red Zone were kept to a minimum despite higher fire occurrence. Initial Attack crews contained 71 fires in Red Zone, which accounted for 5,200 ha. of timber consumed. No major losses were reported in areas slated for harvest.

A total of 1,895 ha was site-prepared for planting and natural regeneration; Tolko and the Department planted 2,382,970 trees. Community tree plantings were conducted in Thompson, Leaf Rapids, and Churchill.

Tolko presented their 2000 Annual Harvest and Renewal Plan in six communities.

Salvage timber in a burn (August 1998) north of Leaf Rapids was auctioned; 34,000 m^3 was awarded to Nelson House Forest Industries and Marcel Colomb First Nation. There was 7,000 m^3 of aspen auctioned in Thompson District for fuelwood and lumber.

About 400,000 m^3 of timber were harvested.

Provincial Parks

A new prototype amphitheatre was completed at Paint Lake to enhance the Interpretative Program. Major reorganization of marina parking and boat launching facilities was also finished at Paint Lake.

Assisted by Thompson Rotary Club, trail development at Pisew Falls and new Rotary Bridge continued with new signage for visitor orientation and a trailhead kiosk.

Wildlife

Inventory of moose in York Factory Resource Management Area was completed with York Factory Resource Management Board. Moose distribution is limited to Hayes River and its major tributaries. There are insufficient moose for commercial exploitation.

The Region has the bulk of the non-resident moose hunting opportunity. A total of 132 non-resident moose licenses were allocated to lodges and outfitters. There continues to be demand for more, but moose are in high demand by locals, limiting further allocation. Most outfitters are residents.

A total of 87 polar bears were captured in Polar Bear Alert Program. Summer was busier than usual due to early melt on Hudson Bay and the break-up pattern. The impact of aggressive action at the dump on the number of bears in town was analysed. Results of six years of this effort, reported to Polar Bear Technical Committee, include a five-fold reduction in bears in town at night, no bears identified as habituated or food-conditioned at the dump in the last two years, and reduction in bear defence kills by the public, from 109 in1970-79 to 18 in 1990-99. The bear population increased about 10% during this time.

Manitoba Trappers Association held a Fur Table in Thompson in December; five buyers purchased from 200 trappers. A total of 7,736 pelts were traded, valued at $259,192.

Table RO.15
12-2(c) Northeast Region

Expenditures by Sub-appropriation	Actual 1999/00 $	Estimate 1999/00 FTE	Estimate 1999/00 $	Variance Over/(Under)	Expl. No.
Total Salaries and Employee Benefits	2,092.8	44.38	2,166.7	(73.9)	
Total Other Expenditures	974.1		946.3	27.8	

Central Region

Regional headquarters at Gimli and 20 District offices administer and manage natural resources (including water), and Parks, also encompassing Lakes Winnipeg and Manitoba.

A total of 104 youths were employed in Green Team Program in Parks and Districts.

Staff assessed 205 applications for Crown Land Permits, Leases, sales, appeals, exchanges and Quarry Leases, 120 requests for Casual Quarry Permits, 2 snowmobile trail proposals, 12 Sustainable Development Innovation Fund applications, 24 Licensing Advisory Committee applications, 14 policy and planning reviews, 104 private land subdivision proposals, 136 Water Rights Licenses, 3 large livestock operation proposals, two forestry Annual Operating and Renewal Plans, 18 forestry Work Permits, 34 Operational Land Use Code amendments, 34 Environment Act License proposals and 27 Municipal planning reviews and by-law amendments.

Enforcement

Approximately 3,000 Occurrence Reports were received by staff, of which 1,106 calls were for assistance with problem wildlife, and about 1,000 required enforcement action. The remainder were for fire suppression and resource information.

A total of 1,300 enforcement actions resulted in 767 charges laid, 413 warnings issued and 121 people evicted from Parks. Fines issued by courts totaled $94,125.00. Approximately 40% of charges were under *The Manitoba Fisheries Regulation*.

Enforcement officers' time was spent as follows:

Enforcement Activity	% of Enforcement Time
Big Game	38%
Commercial Fisheries	18%
Sport Fisheries	10%
Parks	14%
Migratory Birds	9%
Other (water, fires, lands, etc.)	11%

Fisheries

Spring opening on Lake Winnipeg was determined by spawn testing to protect pickerel and sauger. Lake Manitoba perch fishery operated for the third of a three-year agreement. Late freeze-up delayed start of the 3¾" fishery. Previous fry-stocking on Chitek and Inland Lakes again produced a strong pickerel harvest, worth $300,000.

User participation continued in fisheries management. Lake Manitoba Commercial Fishermen's Association operated experimental index netting, fish tagging, spawning collection and hatchery projects. This included mobile spawn camps and hatcheries at Lonely Lake Drain and Lynchs Point. Dauphin River fishermen collected pickerel spawn from Warpath River.

Commercial fish harvest was (kg round weight):

Lake Manitoba	Pickerel	Sauger	Perch
1999-00	311,200	62,820	83,860
1998-99	180,140	83,410	179,880

Production of pickerel increased substantially despite loss of three weeks of fishing to late freeze-up.

Lake Winnipeg	Whitefish	Pickerel	Sauger
1999/2000	928,864	2,727,955	949,500
1998/1999	1,165,864	1,932,182	1,028,545

Harvest of pickerel, the highest value species, was substantially above last year. Production of whitefish and sauger declined slightly, due to higher percentage of pickerel in the catch. Excellent production and good prices resulted in a buoyant fishery.

Forestry

Timber harvest volumes were down, largely due to shorter winter operating season. Tolko's softwood harvest was down only slightly while harvest was significantly less throughout Pine Falls' Integrated Wood Supply Area, with quota operations down and no activity in Forest Management Unit 45. Poplar harvest in the region stayed steady with most being cut in Meadow Portage area for manufacture by Louisiana-Pacific and Palliser Furniture. Again, fewer Timber Permits were issued as demand for firekilled salvage wood declined.

Timber harvest volumes were as follows (m^3):

	FMU40	FMU 41	FMU 43	FMU 45	Tolko	Permits	Total
Softwood	6,350	15,625	-	250	27,000	1,600	50,825
Hardwood	250	-	4,825	-	-	2,000	7,075
Total	6,600	15,625	4,825	250	27,000	3,600	57,900

Forest renewal activity in the region remained high:

Area Renewed (ha)	1996-97	1997-98	1998-99	1999-00
Planted	219.0	202.0	460.0	362.9
Seeded	5.7	5.3	5.5	0
Scarified	50.0	59.0	25.0	10.5
Trees planted	502,950	565,939	1,219,800	925,400
Site prepared (ha)	149	356	248	255.3
Plantation area chemically released (ha)	236	814	194	0

There were 63 fires actioned, all human-caused, burning 7,944.7 ha.

Provincial Parks

Birds Hill Park Pan American Games events were a success. Lasting legacies include road resurfacing for biking events, lake restoration, and a new equestrian cross-country track.

A new 20-unit camping bay at Hnausa neared completion. Park entry signs were built at St. Malo, Grand Beach and Birds Hill Parks. Expansion of interpretative program at St. Malo is planned for spring opening. Through co-operation with Waterhen First Nation, Chitek Lake became a Park Reserve.

A total of 73 special events were hosted, including Winnipeg Folk Festival, Pan American Games, and Girl Guide International Jamboree.

Park	Attendance
Birds Hill	762,311
Grand Beach	461,130
Hecla/Grindstone	142,483
St, Malo	208,118
St. Ambroise	47,184
Subtotal	1,621,226
Other Regional Parks	153,712
Total	1,774,938

Water Management

A total of 137 Water Rights License applications were received and 393 drainage concerns or complaints were investigated. Municipalities were assisted with water management projects. There were 112 Water Right Licenses issued as were 37 Letters of Approval for drain cleanouts. Roseau River International Water Management Association was formed and monthly meetings held with eight Water Management Associations (Fisher, Western Interlake, Northeast Interlake, Southeast Interlake, Northeast Agassiz, Southeast, Northwest Red, and Plum River)

Provincial Waterways (drains) were maintained and crossings were repaired or replaced by staff or by tendered contract. Dams were operated to regulate water levels within desirable range. Control structures were operated on La Salle River diversion, Portage Diversion and Red River Floodway. Refurbishment and upgrading work continued on Red River Floodway inlet control structure and on Red River Valley town dykes.

Repairs to infrastructure damaged by 1997 flood continued, including drains, crossings, control structures and dykes. Regional flood replacement and restoration costs were $1.2 million.

Wildlife

A healthy elk population appears to have re-established in south Interlake. A survey flown in January indicated a population of 1100 animals. (In late 1960's, prior to transplant of 125 elk from Riding Mountain National Park, this population was estimated as under 50.) Consequently, hunting seasons and license quotas will be increased in 2000. Co-operation continues with Rocky Mountain Elk Foundation on habitat enhancement.

Chitek Lake wood bison herd growth continues; it is estimated at 80 animals. Six cows are equipped with radio collars for monitoring. Range expansion continues with more animals observed west towards Lake Winnipegosis. Burns were conducted on some larger lakeside meadows to enhance habitat.

Sharp-tailed grouse populations appear low in most of the Interlake. Programs are being considered to rejuvenate habitat in Narcisse Wildlife Management Area. Here, an organization, Sharp-tails Plus, is experimenting in vegetation management, including burning and mechanical control of aspen.

Moose population on Hecla Island has declined from about 260 in late 1970's to 25 animals in 2000. Predation and deterioration of habitat quality appear to be contributing factors. Staff are preparing proposals, include bear live-trapping and removal, and rejuvenation of habitat.

A die-off of snakes occurred at Narcisse snake dens, possibly from exposure to cold at the surface, which may have been responsible for lack of spring activity. Techniques to reduce or eliminate snake mortality on Provincial Trunk Highway 17 were investigated by Narcisse Snake Mortality Advisory Group. A drift fence and tunnel allowed passage of approximately 9,000 snakes in fall migration. Additional drift fences and tunnels are planned in partnership with Manitoba Hydro, Manitoba Highways and Government Services, and Narcisse Snake Mortality Advisory Group.

Table RO.16
12-2(d) Central Region

Expenditures by Sub-appropriation	Actual 1999/00	Estimate 1999/00		Variance Over/(Under)	Expl. No.
	$	FTE	$		
Total Salaries and Employee Benefits	4,401.8	97.15	4,460.6	(58.8)	
Total Other Expenditures	1,666.2		1,690.0	(23.8)	

Eastern Region

Regional headquarters at Lac du Bonnet and 12 District offices administer and manage natural resources, Parks, and Department infrastructure.

Enforcement

Of 2,574 Occurrence Reports, 814 were problem wildlife (61 beaver, 470 bear, 72 wolf, 15 big game, 26 migratory birds, 170 other), 914 were regulatory, and 846 were non-regulatory.

Officers checked 11,663 anglers, resulting in 282 charges laid and 138 warnings issued. There were 2,058 hunters checked, with 48 charges and 12 warnings. A total of 14 decoy operations produced 16 charges. There were 60 charges, 176 warnings and 142 evictions under ***The Provincial Parks Act*** and Regulations.

Fisheries

Angler walleye harvests were monitored on White, Jessica, Lone Island and Big Whiteshell Lakes. Fish stocks were assessed on Lac du Bonnet, George, Forbes, Brereton, Falcon, West Hawk, Malloy, Red Rock and North Cross Lakes. Over 350 adult sturgeon were tagged on Winnipeg River between Pointe du Bois and Seven Sisters to determine annual population variability and distribution. A fisheries habitat inventory was conducted on Cooks Creek. Two spawning shoals were created on Willow Reef and Silver Lodge Island in Lac du Bonnet, part of Fisheries Enhancement Initiative. A new geographical information system database was developed to reference waterbodies. A total of 58 lakes were stocked with 11,000 walleye fingerings, 8,630,000 walleye fry, and trout fingerlings (57,300 lake trout, 58,200 rainbow trout, 23,700 brown trout, and 8,800 brook trout).

Forestry

A total of 141 forest fires (near average), 73% of which were human-caused, burned 44,336 ha.

In May, two major fires occurred:

1. Fire #54 (Manigotagan area) burned about 29,000 ha. of forest in Pine Fall Paper Company's FML. The Company was able to salvage close to 60,000 m^3 of pulpwood, the first time that they were able accommodate such a large volume of burnt material in their pulping process.
2. Timber quota holders salvaged over 25,000 m^3 of fire-damaged material from Fire #35 (1,400 ha.) at the Region's south end.

Aerial seeding and tree planting will be used, in addition to natural regeneration, to ensure these lands are adequately reforested.

Strong product demand and steady markets continue. Forest renewal programs are keeping pace with timber harvest.

Provincial Parks

Whiteshell, Nopiming and Atikaki Parks received high numbers of visitors throughout the year. Late snowfall and early thaw reduced open days for snowmobile and cross-country ski trails. Falcon Lake Ambulance Service responded to 169 calls, transporting 72 people to hospital.

Upgrading camper services continued with a pumphouse at Opapiskaw campground and additional electrical sites in north Whiteshell. The Bird Lake solid waste transfer station was opened, completing major environmental commitments for redeveloping solid waste disposal. Development continued on South Whiteshell Trail and planning and design started for North Whiteshell Trail. Both will become part of Trans Canada Trail. Interior construction work was completed on West Hawk Hatchery Interpretive building. Management planning for Atikaki Park was initiated. Public Open Houses were conducted and a comment summary report prepared.

Wildlife

A co-operative moose management committee, with First Nations, local wildlife associations, other organizations and Pine Falls Paper Company, continued work towards a strategy, primarily dealing with issues of forest access and moose management. Major aerial moose surveys were conducted for Game Hunting Areas 26 and 17A. Wild boars in the Mars Hill Wildlife Management Area were reported and a small-scale control program was implemented with positive results. An Integrated Woodland Caribou Management Committee, with Manitoba Hydro, Pine Falls Paper Company, First Nations, NGO's and local wildlife associations, developed and implemented a monitoring program for Atikaki/Berens range. Seven GPS collars and four standard collars were installed on caribou for monitoring and research. Owl Lake herd, the most southerly range, was estimated at 70 animals.

Table RO.17

12-2(e) Eastern Region

Expenditures by Sub-appropriation	Actual 1999/00	Estimate 1999/00		Variance Over/(Under)	Expl. No.
	$	FTE	$		
Total Salaries and Employee Benefits	3,240.8	74.72	3,252.1	(11.3)	
Total Other Expenditures	971.0		997.5	(26.5)	

Western Region

Regional headquarters at Brandon, Sub-regional offices at Dauphin and Swan River, water engineering offices at Neepawa and Minitonas, and 15 District offices, administer and manage natural resources, Parks, and infrastructure.

Enforcement

Natural Resource Officers responded to complaints about livestock killed or injured by wildlife, for claims submitted under Predator Compensation Program. In future, Manitoba Crop Insurance Corporation will be responsible for the Program.

Of 3,450 Occurrence Reports, 1,817 were problem wildlife, 1,200 regulatory, and 433 non-regulatory.

Officers checked 9,421 anglers, 8,683 hunters (7,351 big game, 1,007 migratory bird, and 325 upland gamebird), 243 commercial fishermen, and 343 domestic fishermen. A total of 590 enforcement actions resulted in 361 charges, 208 warnings, 18 evictions, and 3 trespassing dues.

Active fall enforcement included many night patrols and decoy operations. Two major covert operations, assisted by U.S. Fish and Wildlife Officers, involved penned hunting of big game and over-possession of waterfowl, and resulted in charges.

Fisheries

The open-water Fall Fishery on Lake Winnipegosis harvested 180,000 kgs. of walleye, an increase over 1998 (138,000 kgs.), and highest since 1991. Swan Lake commercial fisheries produced 47,780 kgs, valued at about $53,200.

Treaty domestic fishing on Dauphin Lake and its tributaries significantly increased, focused on walleye during Spring spawning. Sustainability of this fishery is a priority to be addressed next year with First Nations representatives.

Index netting was completed on Winnipegosis, Dauphin, Lake of the Prairies, Wahtopanah, and Oak Lakes. This provides annual database updates and assists evaluating management.

About 10 million walleye fry and 600,000 trout fingerlings of various species were stocked. The annual stocking program is integral to fisheries management and essential to recreational fishing. Anglers on Lake of the Prairies enjoyed an exceptionally productive season, as the strong 1995 year-class fully recruited to the recreational fishery. Rossman Lake, Seech Lake, and reaches of Shell River are being stocked experimentally.

Small-mouth bass were introduced to William Lake this year to rejuvenate this popular recreation fishery near Turtle Mountain. The bass will diversify angling, and control perch numbers through predation.

There were 1,000 sturgeon fingerlings stocked in Assiniboine River near Brandon for the third year. This re-establishment initiative has been very encouraging, with confirmed local catches. Sturgeon, recognized as a heritage species, is protected on a catch-and-release basis.

Sponsored by Fisheries Enhancement Initiative and coordinated by Whitemud Watershed Conservation District, rehabilitation projects were identified at five high-priority sites: Stony Creek, Brookdale Drain, Boggy Creek, Lake Irwin, and Whitemud River downstream from Lake Irwin. Work includes riparian fencing, in-stream riffles, offshore watering, and bank stabilization, to enhance water quality and fish habitat. Watershed management initiatives continue with Little Saskatchewan River, west Souris, Pembina River, Turtle River, and Turtle Mountain Conservation Districts. Public awareness and participation in managing fish habitat, by watershed and integrated with other landuse activities, is becoming common, boding well for sustainability of fish resources.

Forestry

Staff conducted regular silviculture projects and new initiatives. Contracts for planting 665,300 black spruce and 1,054,000 white spruce, a total of 1,719,300 seedlings, were completed on 1,010 ha. of cutover. A two-row mounder, on a skidder with high floatation tires, was purchased from Saskatchewan to site-prepare 217.6 hectares on several site types in Duck Mountain and Porcupine Provincial Forests. This will determine if mounding is an effective alternative to herbicide for vegetation management and improves seedling performance on wet or poorly-drained soils.

A partnership agreement, with Swan River Friendship Centre and Human Resource Development Canada, established a 10-week stand-tending training program. Ten participants, selected by the Friendship Centre, could obtain a Forestry Pesticide Applicator's License, after completing the Assiniboine Community College self-study course. Participants were trained in low-impact manual and chemical spot-treatment methods to release softwood plantations from hardwood competition. 53.8 ha. of spruce plantation were released during the project. Success of these treatments will be assessed next year. It was determined that this type of program could be improved and repeated.

A third-generation assessment was completed on the Garland Grazing Study Site; Forestry contributed to Manitoba Agriculture and Food's interim report.

Evaluation of not satisfactorily regenerated (NRS) forestlands was completed in FMU 13 for Porcupine Provincial Forest. Of 2,004 ha. reviewed, 240 ha. were found to be NRS to original forest cover and only 198 ha. were found to be NRS requiring follow-up treatment. Prescriptions and plans to address these renewal concerns were developed initiated; evaluation will continue in 2000.

Integrated Resource Management Team (IRMT) pre-plan mitigation and review of Annual Operating Plans for Tolko and Louisiana-Pacific were co-ordinated. Staff played a major role in implementing forestry-related terms of Treaty Land Entitlement Framework Agreement.

Staff reviewed about 120 Work Permits on about 240 planned cut blocks in Mountain Forest Section. The IRMT reviewed 7 Permits involving 27 Louisiana-Pacific cut blocks on agricultural Crown lands and 10 Permits for forest renewal. Field staff was provided decision support in inspecting and enforcement of forestry operations. District offices issued about 740 Timber Permits.

Provincial Parks

Spruce Woods and Stephenfield pioneered use of Campground Reservation Service for booking clients. Expected start-up difficulties facilitated adjustment and inclusion of all group campgrounds next year.

Spruce Woods Park Centre officially opened. The Pan-American equestrian endurance 100-mile ride took place, concurrent with Pan-Am Games. Friends of Spruce Woods equestrian group operate the equestrian campground; improvements were made to water, showers, lighting, and corrals.

Washroom electrification was completed at Signet and East and West Blue Lakes in Duck Mountains.

Asessippi Ski Hill opened for Christmas Break in 1999, evidently a success despite mild weather. The bunkhouse was leased to Ski Asessippi for youth-group accommodation.

Trans Canada Trail routes through Spruce Woods and Asessippi Parks were finalized; citizen groups will develop the Trail next year.

High water on Assiniboine River in Spruce Woods Park reduced the buffer between the river and the campground road. Rivers Park campground suffered extensive damage from an eruption of springs due to heavy rain. Restoration commenced in both; additional work is scheduled for next year.

Water Control

Water Management comprises Engineering and Water Rights. Engineering Section includes staff in Neepawa, Ste. Rose, Dauphin, and Minitonas, primarily to operate, maintain, and construct dams and waterways. Engineering support is provided to other Branches, Conservation Districts, and Municipalities. Major projects included installation of new outlet culvert in Manitou dam, various flood repairs in southwest, including repairs to Rivers Dam spillway and crossing replacements on Maple and Fishtown Creek Provincial Waterways. A waterflow-regulation scheme was designed for Killarney Lake and a feasibility report was prepared on flood protection for Melita. Surveys for the Big Grass Marsh water control project continued.

Investigations and enforcement of ***The Water Rights Act*** continued until March 2000, at which time Manitoba Court of Appeals (Hildebrandt vs. Manitoba) decided that only municipalities had jurisdiction over drainage. Consequently, The Act will be amended. There were 147 water rights complaints were received, resulting in 15 Enforcement Notices, four Ministerial Orders, one emergency Ministerial Order, and one charge laid.

Processing drainage license applications in Brandon Regional Office began; 135 applications were received and 54 issued. To educate the public on water licensing requirements, 1,500 letters were mailed to every registered farm, and 36 letters to heavy equipment operators, in Swan River District.

Watershed planning groups continue to be formed and facilitated as Municipalities, Conservation Districts, and landowners show interest.

Wildlife

Monitoring and cleanup of waterfowl botulism on Whitewater Lake was assisted for the fourth summer. Intensive research on botulism continued with Ducks Unlimited and Canadian Wildlife Service.

Green Team students assisted monitoring of successful nesting by peregrine falcons on McKenzie Seeds building, Brandon, for the sixth consecutive summer. Early spring surveys of upland game birds, owls, and amphibians were completed.

Monitoring bovine tuberculosis in big game, in and adjacent to Riding Mountain National Park, continued in fall and winter hunting seasons. An inter-agency task team formed to prepare long-term monitoring strategy.

Allocation of non-resident (non-Canadian) deer and black bear licenses to outfitters continued for all areas. Bear population status and the analysis of biological data and bear damage complaints were reviewed in each Game Hunting Area. License quotas were increased in many areas, providing additional opportunities for operators. Review of use reduced quotas for deer and bear operators who did not use their licenses fully.

Major wildlife impact assessments included review of proposed harvest of about 240 Timber Blocks identified in Louisiana-Pacific and Tolko Annual Operating Plans. Crown land sale applications and land-use code change requests for agricultural purposes were reviewed to protect wildlife values.

Discussion continued, with such agencies as CFB Shilo, the Manitoba Cattle Producers, and Manitoba Agriculture and Food, on the value of mixed grass prairie on Crown land, with cooperative grazing management trials planned for 2000.

Table RO.18

12-2(f) Western Region

Expenditures by Sub-appropriation	Actual 1999/00	Estimate 1999/00		Variance Over/(Under)	Expl. No.
	$	FTE	$		
Total Salaries and Employee Benefits	4,145.2	92.20	4,143.1	2.1	
Total Other Expenditures	1,560.4		1,561.0	(0.6)	

Fire Program

Winter precipitation was below average in most forested areas. This resulted in the early deployment of some seasonal initial attack resources and all serviceable CL-215 air tankers. First wildfires were reported in early April, three weeks ahead of normal.

Dry conditions persisted through April and, by April 26, a total of 46 fires had been reported. Over the next four days conditions deteriorated and, by 30 April, 121 wildfires had occurred. On April 30, a Burning Permit ban was issued for the south. By May 7, 180 fires had consumed an estimated 37,486 ha, with several major fires south of 53rd parallel and a fire at St. Theresa Point (Island Lake area) that destroyed seven residences and caused the evacuation of 57 people. A major blaze in the south, the Manigotagan fire, ran over 35 km. on the afternoon of May 2 and forced evacuation of four communities (2000+ residents). This fire burnt the transmission line along P.R. 304 and disrupted electrical services to communities to the north and east for several days. By May 10, rain occurred in most of the south.

In August, precipitation was light-to-moderate; in the latter part high-to-extreme drought conditions prevailed in Northwest Region. Dry electrical storms August 23-28, brought detection of 34 new fires. As a result of high winds that grounded aircraft, three fires grew to project status (Cold Lake 6,000 ha, Snow Lake 4,000 ha. and Grand Rapids 1,600 ha.). Provincial fire teams were assigned, and a CL-215 group mobilized from Northwest Territories, along with 28 additional helicopters and 667 firefighters. While most of the south of the province received rainfall, little precipitation was recorded in fire areas and suppression efforts continued until fires were brought under control in mid-September and the additional resources released.

A total of 613 wildfires were recorded, burning 115,543 ha. Although there were 90 fires more than the 10-year average (525 starts), area burnt was well below 10-year average of 358,425 ha.

Fire Program has available seven CL-215 waterbombers, three Cessna 310 Bird Dog aircraft and three single engine Otter aircraft, operated by the Manitoba Government Air Division. In addition, the Province contracts one 206 Jet Ranger, one Bell 204 and three Bell 205 helicopters from private operators for the season. Through standing offers with industry, the Program casually contracts additional helicopters and fixed-wing aircraft as needed.

Manitoba relies heavily on CL-215 air tankers, which skim water from lake surfaces. However, in spring, ice prevents these tankers from operating. With cooperation of Saskatchewan Natural Resources and a chemical supplier, crop-spraying Dromader aircraft were tested using long-term Class A foam retardant in standing jackpine, new growth, and grass fuel types. The tests proved utility of this tool, and crop sprayers equipped six aircraft for spring 2000.

Fire Program assisted the highschool Envirothon competition as fire management was the key topic. A total of 20 teams of four students entered; Manitoba's winning team (from Swan River) placed among the top ten at the international competition in southern California.

Forest Fires: Handle with Care – A Teacher's Guide, *developed* by Canadian Forestry Association for National Forest Week, was distributed to schools.

The Partners in Protection handbook, ***Fire Smart – Protecting Your Community from Wildfire,*** was distributed to First Nations, Northern Affairs communities, and municipal governments in *Burning Permit* areas.

A Winnipeg Goldeyes game was sponsored with the opening pitch delivered by a Cabinet Minister. Decals were printed and distributed and a prevention message included in the programme. There were 100 seats donated to Big Brothers and Sisters and local First Nation's community centers. The radio station broadcasting the games promoted fire prevention with radio spots over the summer as part of the package. Eastern Region winners of the poster contest were guests at the game along with Envirothon team winners.

Increased emphasis has been placed on first-aid training to Natural Resource Officers and seasonal staff to comply with Workplace Safety and Health regulations. Fire Program conducted a revised Safety Officers training course for staff in February, 2000.

An upgrade to the National Fire Information System (NFIS) was operational by mid-May. The NFIS contractor also developed a Geographic Information System package and worked on a Web page for Fire Program. A total of 20 radio repeaters were converted.

Under Resources Sharing Agreements, equipment and personnel are shared with other jurisdictions. Minnesota, the Northwest Territories, Alberta, Saskatchewan and Ontario provided aircraft for suppression. Fire equipment was received from Quebec and British Columbia. Manitoba assisted Minnesota with a CL-215; Alberta with fire overhead staff, a helitorch team and a CL-215 group; Ontario with a medium helicopter, helitorch team and CL-215 air tankers; Saskatchewan with CL-215's and a medium helicopter; and Quebec with a CL-215 air tanker group.

Manitoba hosted personnel from Ontario, Minnesota, Michigan, and Wisconsin at Great Lakes Forest Fire Compact annual meeting; Manitoba chairs this group in 1999-00 and 2000-01.

Table RO.19

12-2(g) Fire Program

Expenditures by Sub-appropriation	Actual 1999/00	Estimate 1999/00		Variance Over/(Under)	Expl. No.
	$	FTE	$		
Total Salaries and Employee Benefits	4,376.2	61.69	4,304.7	71.5	
Other Expenditures	7,247.7		7,243.0	4.7	

Table RO. 20

Number of Fires, 1990 - 1999

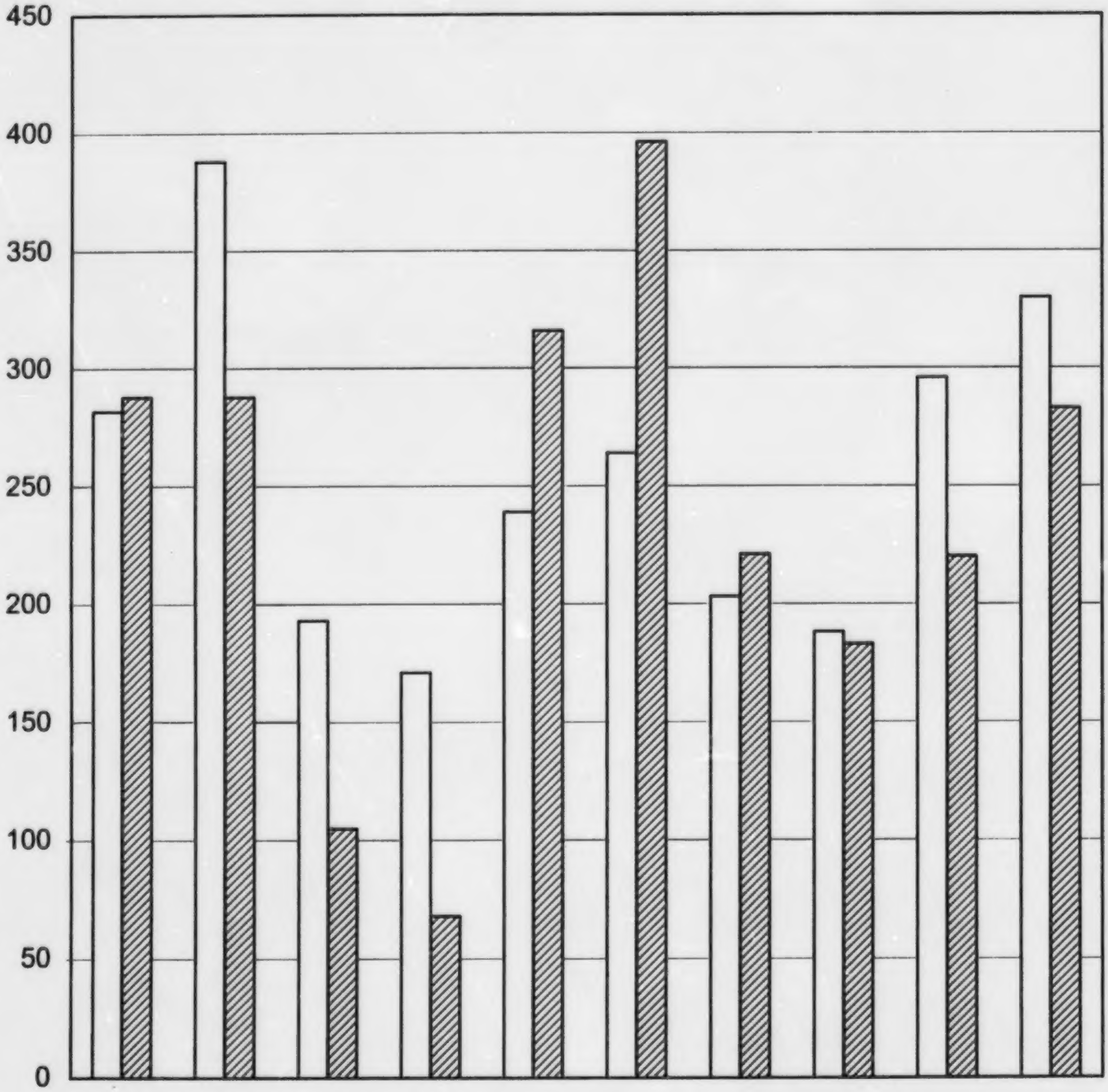
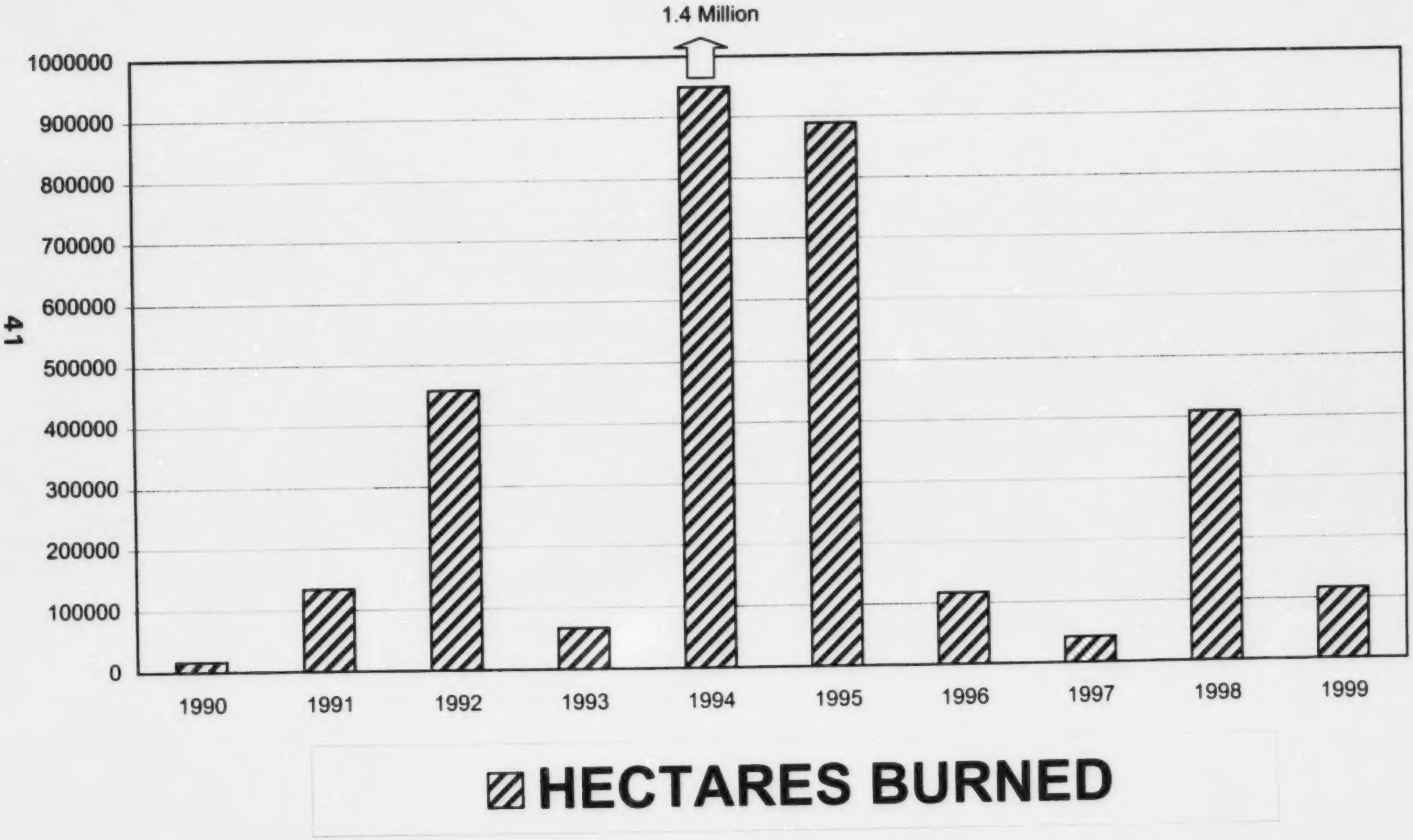


Table RO. 21

AREA BURNED

1990 - 1999



1999 - Number of Fires and Area Burned by Region and Cause

CAUSE	Northeast		Northwest		Western		Central		Eastern		Province	
	# Fires	Area Burned (ha.)	# Fires	Area Burned (ha.)	# Fires	Area Burned (ha.)	# Fires	Area Burned (ha.)	# Fires	Area Burned (ha.)	# Fires	Area Burned (ha.)
Recreation	31	6,427.5	9	8.0	7	62.1	1	120.0	19	2,417.3	**67**	**9,034.9**
Settlement	12	278.6	3	47.0	8	229.5	9	752.0	24	941.8	**56**	**2,248.9**
Woods Operations			1	0.1	1	0.1	1	15.0	1	0.1	**4**	**15.3**
Other industry	3	2.2	3	0.3			2	6.1	3	0.4	**11**	**9.0**
Railroads			2	1.2					6	3.3	**8**	**4.5**
Public projects									9	13.0	**9**	**13.0**
Incendiary	52	2,463.8	2	0.6	10	5,699.2	36	2,171.1	24	32,256.6	**124**	**42,591.3**
Miscellaneous	8	3.9	5	1.8			3	62.5	4	1.1	**20**	**69.3**
Agricultural			1	5.0	6	424.2	11	4,818.0	13	208.4	**31**	**5,455.6**
Lightning	180	26,459.6	65	21,148.1					38	8,493.9	**283**	**56,101.6**
All Causes	**286**	**35,635.6**	**91**	**21,212.1**	**32**	**6,415.1**	**63**	**7,944.7**	**141**	**44,335.9**	**613**	**115,543.4**

Table RO. 22

1999 - Number of Fires and Area Burned by Priority Zone and Action Status

ZONE	Actioned Fires				No-Action Fires				Limited Action Fires				All Fires			
	# Fires	% Fires	Area Burned (ha.)	% of Area Burned	# Fires	% Fires	Area Burned (ha.)	% of Area Burned	# Fires	% Fires	Area Burned (ha.)	% of Area Burned	# Fires	% Fires	Area Burned (ha.)	% of Area Burned
RED	328	63.4%	63,591.2	82.7	4	5.8	2.3	0.0	11	40.7	3,653.4	26.7	343	56.0	67,246.9	58.2%
YELLOW	5	1.0	454.0	0.6					1	3.7	0.1	0.0	6	1.0	454.1	0.4%
GREEN	171	33.1	10,718.9	13.9	24	34.8	7,474.3	29.9	11	40.7	4,864.0	35.5	206	33.6	23,057.2	20.0%
WHITE	13	2.5	2,089.0	2.7	41	59.4	17,526.0	70.1	4	14.8	5,170.2	37.8	58	9.5	24,785.2	21.5%
ALL ZONES	517	100.0	76,853.1	100.0	69	100.0	25,002.6	100.0	27	100.0	13,687.7	100.0	613	100.0	115,543.4	100.0%

Table RO. 23

Chapter 5

Water Resources Branch

Significant resources were devoted to recovery from the 1997 Red River Valley flood and preparing for future floods. Refurbishment of Red River Floodway, Portage Diversion, and Assiniboine River dykes continued, as well as financial and technical assistance for homes and businesses in floodprone areas. Dyking projects to protect several communities were coordinated. Inventory of flood-impacted wells in the valley was completed and groundwater quality programs were initiated.

Legislation to help prevent flood damage to new developments was formulated, and flood forecasting and monitoring capabilities were expanded. Recommendations from the Manitoba Water Commission and International Joint Commission were implemented insofar as possible.

Planning for sustainable development in several watersheds and aquifer areas continued with stakeholders.

With broad public input, examination of water use and allocation issues continued, to improve licensing procedures and to recommend changes to ***The Water Rights Act***. Interim changes to the Act were prepared to clarify jurisdiction over drainage.

Administration

Staff ensure sustainable development, allocation, and conservation of water resources by maintaining conformance to policy and procedures, control of funds, contract negotiation, and monitoring expenditure efficiency and effectiveness.

Table WA.1
12-3(a)-1 Administration

Expenditures by Sub-appropriation	Actual 1999/00 $	Estimate 1999/00 FTE	Estimate 1999/00 $	Variance Over/(Under)	Expl. No.
Total Salaries and Employee Benefits	288.5	7.00	296.3	(7.8)	
Other Expenditures	458.5		547.7	(89.2)	
- Grants/Transfer Payments	4.9		25.0	(20.1)	
Total Other Expenditures	463.4		572.7	(109.3)	

Water Licensing

The section fostered sustainable development by licensing and enforcement of water use and water power projects.

Water Use Regulation

Water allocation plans were completed for Assiniboine Delta and Oak Lake Aquifers. Work on water allocation plans for Assiniboine River, Whitemud River and tributaries, Boyne River, and south-central Manitoba (Agassiz Irrigation Association area) continued.

A "use it or lose it" policy, as provided by ***The Water Rights Act***, was implemented to address licensing backlog. The Act and policy provide for amendment or cancellation of licences if works are not constructed, or if amount and purpose of water use does not conform to the licence. Applicants for licences were contacted to determine project status. This initiative resulted in closure of 88 files.

Table WA.2
Water Use Regulation

	Surface Water	Groundwater
Applications for renewal of Licence	4	5
Applications for new uses	43	64
Licences processed but not issued[1]	0	1
Licences issued, by type		
Municipal	1	2
Agricultural	0	36
Industrial (including mining)	0	3
Irrigation	0	3
Other purposes	0	5
Total number of licences issued	1	49
Letter of Authorization issued[2]	21	15
Total	22	64

1. *Applications were processed and licences forwarded to applicants for acceptance, but applicants have not signed and returned the licence for execution by the Director.*
2. *In addition to licences, 16 letters of authorization were issued to allow projects to proceed to construction pending completion of licensing and 5 letters were issued for short-term projects.*

Water Power Regulation and Crown Land Development Review

Recommendations were made on 140 proposals for use or sale of Crown land in water power licence areas and water power reserves. The licence for Great Falls Generating Station was renewed.

Table WA.3
Water Power Revenue

	Land Rentals	Water Power Rentals	Kilowatt-Hours Production
Manitoba Hydro	$703,712.64	$46,186,661.65	28,360,638,260
Winnipeg Hydro	$23,985.98	$1,808,902.85	1,110,752,060
TOTAL	$727,698.62	$47,995,564.50	29,471,390,320

Table WA.4
12-3(a)-2 Water Licensing

Expenditures by Sub-appropriation	Actual 1999/00 $	Estimate 1999/00 FTE	Estimate 1999/00 $	Variance Over/(Under)	Expl. No.
Total Salaries and Employee Benefits	577.7	15.00	605.5	(27.8)	
Total Other Expenditures	65.1		64.8	0.3	

Water Planning and Development

The Section:

- Planned and managed water-control infrastructure including construction, monitoring, maintenance, and refurbishment,
- Planned and communicated water management activities and strategies,
- Reviewed and developed legislation, policy, programming and service delivery,
- Investigated to resolve drainage concerns and complaints,
- Licensed drainage projects, and
- Reviewed and assessed development proposals regarding water impacts.

Co-ordination and co-operation regarding projects, studies, agreements and issues was maintained with other jurisdictions and agencies, including Prairie Provinces Water Board, Lake of the Woods Control Board, International Joint Commission, International Souris River Board of Control, Red River Basin Board, Red River Water Resources Council, Manitoba Water Commission, Prairie Farm Rehabilitation Administration, Saskatchewan Water Corporation, and North Dakota State Water Commission.

Water Planning and Communication

Planning and communication services ensured that developments were sustainable, resource interests were protected, and resource impacts were minimized. Public and clients were informed about issues, programs, activities, developments and proposals. Investigations were undertaken, reports prepared, and presentations made to enhance awareness and to respond to concerns. Stakeholder-supported basin, watershed, and aquifer management planning continued.

International Red River Basin Task Force: Staff participated in the Task Force and supported sub-committees on data, tools, and strategies. The final report, ***The Next Flood: Getting Prepared***, was completed and published, containing several recommendations to improve flood preparedness, response, and recovery from major floods in the Red River valley.

Upper Assiniboine River Basin Study: Technical Committee work results were presented to local watershed committees. A total of 49 representatives of municipalities, watershed associations, conservation and development areas, and conservation districts attended a workshop on managing unauthorized drainage. At a subsequent "future directions workshop", draft strategies were presented to watershed committees. Discussion of study progress and information exchange with stakeholders continued.

Winkler Aquifer Management Plan: Staff assisted the Management Board's business planning to facilitate implementation of initiatives by its five action groups. Funding sources were explored to promote awareness and sustainability of the aquifer.

Oak Lake Aquifer Management Plan: Coordination of planning continued. A final management plan was completed, in conjunction with a Round Table and Technical Advisory Group, and published.

Plum Lakes Management Options: The Multidisciplinary Resource Management Task Force completed investigation for the Oak and Plum Lakes Management Board, finding that no altered water regime could address agriculture and wildlife interests for the entire Plum Lakes area and be financially viable. The Task Force recommended that the conservation district maintain the existing water regime and pursue altered land management. It noted that part of the area could be developed separately. The entire area was recognized as having valuable biological resources and eco-tourism potential that should be protected and promoted. An open house in Oak Lake was organized to present findings and recommendations, concluding the Task Force's work. The Task Force and the Management Board were dissolved.

Assiniboine Delta Aquifer Management Plan: Planning continued toward a stakeholder-supported, consensus process to prepare and implement a management plan to guide development and ensure protection.

Legislation and Policy

Legislation, policies, programs, strategies, and directives were reviewed to provide sustainable development of water resources.

Land Drainage Program Review

Participation continued on an inter-jurisdictional task force leading a stakeholder review of effectiveness and delivery of the program. A report, prepared with input from open houses and task force recommendations, documented with the program and outlined possible changes. A 40-page booklet, *Land Drainage Review - Summary and Recommendations*, was published and sent to open-house attendees.

Water Use and Allocation Review

A review of water allocation legislation, policy, and programming was initiated in a process like that used for drainage review. Participants were asked to discuss and identify issues, solutions and a consultation process. Six public workshops were held; meetings with stakeholders were facilitated. A summary/conclusions report was published and distributed. Outcomes of the drainage and allocation/use reviews became the basis for a discussion paper on ***The Water Rights Act***.

Water Control Infrastructure

'Natural' waterways, crossings, water control structures, dams, dykes, drainage channels, and major flood control works were managed and monitored. Inspection and assessment services were provided to maintain safety and function, and to identify refurbishment and upgrading requirements. Proposals that could affect integrity were investigated, and authorization permits, outlining terms ensuring continued safe and effective control, were issued.

Drainage and Litigation: Land drainage licensing included investigation, compliance, enforcement and resolution of complaints. Contracts for upgrading and rehabilitating agricultural drainage systems were co-ordinated and supervised. Information was obtained and data compiled for Civil Legal Services, Manitoba Justice, regarding litigation, including Big Grass Marsh and Fairford areas.

Water Diversion Works Regulation: Technical advice was provided to licence applicants, to protect public interest, people, and resources, particularly in respect of works that crossed or affected adjacent properties, where capacity of existing works was increased, or where proposed works discharged into a public drain and approval of owner, usually the municipality, was required.

In evaluating drainage project applications, consideration was given to impacts on water resources, wildlife, fisheries, agricultural land, public and private property, receiving drainage works, natural waterways, and waterbodies. A total of 280 applications for drainage licences were received, 20 ministerial orders were prepared and 143 drainage licences issued.

Water Resourced Projects: Engineering design and construction services were provided to other branches and departments, including geotechnical, structural and hydraulic engineering advice. The ***Annual Report of the Dyking Commissioner*** was prepared.

Data Management: A database of provincially-owned infrastructure detail including maps, plans, field/survey information, and microfiches was maintained. Requests for loans or reproductions were filled and specialized equipment and supplies maintained.

Assiniboine River Dikes Rehabilitation: Refurbishment was completed at six sites and land acquisition and environmental licensing arranged at another six sites.

Portage Diversion Refurbishment: Inspection, assessment and preparation of a comprehensive refurbishment plan were completed for the river and diversion channel control structures.

Red River Floodway Rehabilitation: Erosion protection for the western, downstream half of the inlet control structure was completed.

Seine River Siphon: The siphon, crossing under the Floodway, was rehabilitated to reduce leakage.

Development Review of Water Impacts

As a result of the 1997 flood, new grade elevations for 148 homes and businesses were established, in addition to reviews tabulated below.

Water Impact Reviews

	1997-98	1998-99	1999-00
Proposals for subdivisions, municipal development plans and zoning by-laws	272	157	515
Designated flood area permits	449	400	239
IDG circulations, including Environment Act proposals and Sustainable Development Innovations Fund applications	170	72	52
Crown land sale, lease and permit applications	125	197	268

Table WA.5
12-3(a)-3 Water Planning and Development

Expenditures by Sub-appropriation	Actual 1999/00 $	Estimate 1999/00 FTE	Estimate 1999/00 $	Variance Over/(Under)	Expl. No.
Total Salaries and Employee Benefits	1,115.7	19.15	1,133.5	(17.8)	
Total Other Expenditures	142.4		127.0	15.4	

Surface Water Management

Level and streamflow forecasts, and status reports on hydrologic conditions of rivers, lakes and reservoirs, were provided, with emphasis on operation of control works and flood protection. Planning and engineering studies were undertaken for water use, allocation and licensing, public information, and multi-disciplinary resource management. Operation of dams was co-ordinated for water supply, conservation, flood control, fish and wildlife habitat, and recreation. Specialized hydrologic analysis, advice and information was provided.

Hydrologic Forecasting and Reporting

Flood outlooks were issued in February and March. Both indicated that significant spring flooding was likely in Souris River watershed. Daily flood sheets showing current conditions and forecasts were prepared for the Red, Assiniboine, Souris, Pembina, and Roseau rivers from April through June, with explanation. Other reports were prepared twice weekly from July to September due to continued flooding in southwestern Manitoba and unusually high flows on the Red River.

Lake condition and forecast reports were prepared monthly from April to November. Provisional river flow tabulations for 21 river locations were prepared and distributed weekly from July onward.

Unusually heavy spring rain and prolonged flooding in southwestern Manitoba prompted preparation of additional reports, rainfall maps, collection of satellite imagery, etc., for use by government and elected officials.

Volume inflow forecasts were prepared periodically for Lake Manitoba, Dauphin Lake, Lake of the Prairies and Pelican Lake to facilitate operation of outlet controls. Volume forecasts for Red River were prepared for Manitoba Hydro's regulation of Lake Winnipeg.

Hundreds of information requests from the public, consultants and government, mostly by telephone and e-mail, were actioned. Information sought ranged from conditions for canoeing, historical flood information, specialized river forecasts for a multitude of purposes, media comment, and hydrometeorological data for a broad range of users.

Hydrologic and Hydrometeorlogical Analysis

Updating of runoff and flood forecasting relationships continued, with emphasis on Red, Assiniboine, and Souris Rivers and their tributaries. Roseau River was given particular attention with development of forecasting procedures for its tributaries and a flood routing procedure from Malung, Minnesota to Dominion City. The flood routing procedure for Pembina River was re-calibrated and enhanced with data from recent floods. The Muskingum flood routing procedure for Red River was extended to run from Halstad to Winnipeg rather than from Emerson to Winnipeg.

Potential and frequency of major floods on Red River were studied and reported (***Hydrometeorologic Parameter Generated Floods for Design Purposes - Red River at Winnipeg***) to an IJC Task Force reviewing flood risk for Winnipeg. The effect of Rafferty and Alameda reservoirs in Saskatchewan on magnitude and duration of flooding on Souris River was studied; results were presented to Souris River Board of Control.

Support for IJC-sponsored Red River studies continued through membership on a Data and Tools Sub-committee reporting to International Red River Basin Task Force. Advice was provided on selecting consultants for specific tasks, providing guidance and data, and reviewing their reports.

An enhanced electronic climatological network was designed to improve runoff modeling and flood forecasting. This network was implemented with Manitoba Agriculture and ADCON Telemetry, furnishing much more detailed and timely information on weather conditions.

Monthly and storm precipitation maps were prepared and distributed. Estimates of evaporation, design winds, rainfall rates, and other meteorological data were provided to government, consultants and academics on request.

Hydrologic services provided included historic water level and streamflow information, design discharges, and design water levels, for projects and studies.

Surface Water Data Collection

The Branch relies on water level and streamflow data collected under the federal-provincial hydrometric program for operating water control works, flood forecasting, water management investigations, and hydrologic studies. The 1997 Red River flood demonstrated inadequacies in the network and need for more information. The network in the basin is being upgraded under a three-year, Canada-Manitoba Flood Protection Program, Phase II Agreement by:

- Upgrading 48 stations by floodproofing them to 1997 flood level and providing enhanced telemetry for improved real-time data acquisition - these stations being mainly in the Red River Valley,
- Re-activating 22 stations that were discontinued in 1994-97, and,
- Establishing 13 new stations.

A total of 31 sites were completed. Phase II Agreement also includes $300,000 to expand climatological monitoring in southern Manitoba in cooperation with a Manitoba Agriculture initiative.

To supplement the federal-provincial network, water levels were monitored at 126 gauging sites. At two sites, daily streamflow data was obtained. The number of federally and provincially operated hydrometric stations since 1994-95 is shown on the next page.

Hydrometric Station Operation

	1994-95	1995-96	1996-97	1997-98	1998-99	1999-00
Federal-Provincial stations	281	227	227	174	179	179
Provincial stations	116	123	123	135	129	126

Data for 60 provincial stations was forwarded to Environment Canada's database. Provincial and federal data were added to the provincial database.

Water Supply Management, Structure Operation and Allocation Planning

Reservoir levels and spring inflows were monitored to assess flooding and potential supply problems. Inspections were conducted at dams and reservoirs to evaluate performance and concerns were investigated. Stakeholder-supported operating plans, and plans for supply for municipal and industrial uses were carried out. Surface water supplies were sustainably managed through regional or provincial plans, strategies, and policies. Municipal use data was obtained and usage at about 100 communities was updated. Community populations were projected to estimate future water requirements and allocations.

Reservoir Regulation

All major reservoirs filled to target levels by late May. Lake of the Prairies peaked at 428.85m at the end of May and receded to summer target by mid-August. Lake Manitoba peaked at 247.75m in mid-June and remained within its upper range of regulation through summer. Dauphin Lake peaked in early July at 260.80m and receded to target by late August. Brereton Lake peaked at 316.30m in mid-May, 0.28m above target. Falcon Lake peaked at 325.39m and West Hawk Lake peaked at 333.06m, 0.72m and 0.53m above summer targets, respectively.

Flood Damage Reduction

The Red River Floodway was operated from April 4 to May 1 with a peak discharge of 17,500 cfs. The Portage Diversion was operated from March 29 to June 24 with a peak discharge of about 17,000 cfs.

A hydrodynamic model of Red River Valley, produced by Klohn-Crippen Consultants Ltd. for the International Joint Commission, was handed over to the Province for testing, and assessed. The model was used to provide inputs into other IJC-sponsored flood damage reduction studies. Various hydraulic data and inputs were provided for IJC studies and for production by Canadian Hydraulics Centre of a two-dimensional model of Red River Valley immediately south of the Floodway inlet.

The Floodway Operation Review Committee submitted its report to the Minister. This Committee, appointed (1998) by recommendation of Manitoba Water Commission, comprises representatives fom Manitoba, Canada, Winnipeg, and Rural Municipalities of Ritchot, Macdonald and Morris. The Committee was asked to review Floodway operating rules in light of experience gained during the 1997 Red River flood, examine management options for break-up of spring ice, develop contingency plans for emergency operation during a flood of 1826 proportions, and develop operating criteria for control structures on drains that cross West Dyke.

The Committee recommended only minor changes to the Floodway operating rules. It recommended that the Minister establish a Floodway Operation Advisory Board, with membership from both senior governments, and residents from Winnipeg and the valley. The Board would ensure fair application of the operating/rules and communication of critical issues.

The Committee identified some technical issues needing further study, such as what "natural" river levels would occur south of the Floodway without control works. It also recommended studies into ways to get water from the floodplain into the Floodway channel more efficiently, ways to minimize ice impacts, and a determination of safe freeboards for the Floodway embankment and for West Dyke.

The Committee recommended operating criteria for control structures on drains crossing West Dyke to permit rapid removal of water from drained areas while protecting the dyke and drains to the north.

Table WA.6
12-3(a)-4 Surface Water Management

Expenditures by Sub-appropriation	Actual 1999/00 $	Estimate 1999/00		Variance Over/(Under)	Expl. No.
		FTE	$		
Total Salaries and Employee Benefits	736.9	13.75	785.0	(48.1)	
Total Other Expenditures	826.3		1.013.8	(187.5)	

Groundwater Management

Groundwater is monitored and data compiled to evaluate, allocate, and manage the resource and ensure sustainable development. Studies are conducted to enhance knowledge, of groundwater resources and maps and reports prepared to identify local or regional quantity or quality problems.

Aquifer Administration

Groundwater Management at interprovincial boundaries was addressed with the Prairie Provinces Water Board Committee on Groundwater. Participation with Prairie Farm Rehabilitation Administration addressed groundwater management issues and opportunities. Consultation on groundwater issues was provided to Manitoba Environment, Highways and Government Services, and Intergovernmental Affairs.

Consultation on groundwater issues was provided to Winnipeg, Souris, Rural Municipalities of St. Clements, North Cypress, North Norfolk, Springfield, and Ste. Anne, and Selkirk and Area Planning District. Liaison with licensed water-well contractors was maintained as required and at semi-annual meetings of the Manitoba Water Well Association.

Aquifer Data

Groundwater levels were monitored at a network of 560 observation stations. A continuous record was obtained at 400 stations using automatic recorders; at 157 stations, periodic levels were obtained manually. Chemistry or temperature was also monitored at some stations. During summer, a network of 30 rain gauges was operated and soil moisture sampling was carried out at 36 locations. About 1,400 drilling reports were received from licensed contractors. Data from monitoring stations was transferred to a computerized database and well records were computerized. About 1,000 inquiries were responded to for information on specific wells, general groundwater conditions, levels, and chemistry. Availability appraisals for specific locations were prepared in response to 36 requests. A tabular summary of levels in major aquifers was prepared quarterly for the ***Water Supply Conditions and Outlook*** report.

Aquifer Definition

Activities focused on evaluating actual or potential impacts on groundwater quality resulting from agriculture, particularly livestock operations. This consisted of applied research into seepage beneath confined livestock areas and earthen manure storages, groundwater and subsoil monitoring beneath a number of study sites, reviewing and commenting on livestock proposals, and working with inter-departmental committees.

Other significant activities included Environment Act reviews, and assisting the Geological Survey of Canada in studies of Paleozoic aquifers in the southern part of Manitoba.

Agricultural Impacts on Groundwater

Technical reviews were carried out on about 20 livestock proposals. Other departments were assisted in revising the ***Farm Practices Guidelines*** and in preparing information brochures.

Groundwater monitoring was continued at study sites previously established under the Canada-Manitoba Agreement on Agricultural Sustainability. Monitoring examines long-term impacts from manure application onto light and heavy soils. Sampling has been carried out at a number of sites for 4-5 years, providing an indication of long-term trends. In cooperation with the landowner and a recently established hog operation, a study was initiated to examine impacts from liquid manure application over a shallow sand aquifer. An intensive groundwater-monitoring network was established and background water quality information collected.

Studies continued to examine seepage beneath earthen manure storages located in clay materials. Cores were collected beneath one earthen manure storage at a hog operation located on clay and analyzed for nutrient and salt content. Agreement was reached with a number of other cooperators but warm weather in early 2000 prevented access onto ice to collect cores. A co-operative arrangement with University of Manitoba was made to mathematically model transport of contaminants from earthen manure storages as part of an M.Sc. project.

Presentations were made to Agriculture and Environment staff respecting potential for groundwater impacts from hog and cattle operations and results of the groundwater studies.

Cooperation with Other Agencies

Cooperation continued with Geological Survey of Canada (GSC) and University of Manitoba on studies of Paleozoic bedrock aquifers in south and central Manitoba. Fluid conductivity measurements were carried out in over 250 wells on the east side of Red River, south of Winnipeg. In combination with 400 conductivity measurements taken last year, this information will better define the position of the fresh/saline water boundary. Cooperative work continued with GSC to standardize geological descriptions in water well logs on file; conversion to standard description was completed and evaluation continued.

Additional follow-up work was carried out on six wells impacted by the 1997 flood; two abandoned wells in the flood area were permanently sealed.

Assistance was provided to the public and government daily, most frequently with evaluations of potential for water quality impacts from proposed landfill sites, earthen manure storages, and municipal lagoons, and for assistance with well or water quality problems. Assistance was provided to other branches on groundwater or soils contamination. Reviews were carried out on about 40 proposals submitted under ***The Environment Act*** and comments provided.

Input was provided to Agriculture Canada regarding their Hog Environmental Management Strategy, and on methods for aquifer sensitivity mapping being considered, and to an inter-provincial group examining harmonization of guidelines for livestock operations across the prairie region.

Monitoring continued near a saltwater well that was sealed (1997) near Ile des Chênes. Water quality in nearby wells continued to show slow improvement. A number of other possible saltwater wells were identified by a fluid conductivity survey east of Red River. Arrangements were made with well owners to seal some of these next year.

Aquifer Capacity

Monitoring, evaluation, and reporting were completed on hydrogeological data received from 500 stations situated in major aquifers.

Capital activities involved two contracts: establishing nine observation wells in the Odanah shale formation, Simplot aquifers, and three observation wells in the Sandilands Aquifer system. Pumping tests on three irrigation wells in Sandilands area were carried out. A total of 24 groundwater samples were obtained and interpreted.

Eight drilling applications were reviewed for Manitoba Industry, Trade and Mines. Manitoba Highways and Government Services was assisted in solving roadbed problems associated with groundwater resources at four sites. Hydrogeological evaluation of irrigation supply and groundwater impacts continued for Assiniboine Delta Aquifer. Adequacy of water supply from the Brandon aquifer for the Simplot Plant was monitored. Supply aspects of Winkler and Oak Lake aquifers were reviewed. About 300 requests for advice or information were responded to, with a total of four presentations given.

Livestock Initiative

Activity associated with the livestock initiative commenced. About 50 earthen livestock manure storage proposals and spreading situations were reviewed and reported. Field visits were made to most areas where livestock expansion is occurring. Substantial assistance was provided to large-scale rural water-quality sampling programs.

Manitoba Groundwater Quality Initiative

A rural groundwater quality surveillance program was initiated to better understand water quality in agricultural areas, completing the following activities:

Private well sampling: Approximately 800 samples were obtained in rural areas. Samples were collected randomly, one per township in Eastern-Interlake, Winnipeg, South Central and Park-West Regions. Samples have been analyzed for water chemistry, nutrients and bacteria. Geochemical results were entered into the provincial GWDrill database, and used to construct groundwater quality maps of private wells. About 90 samples were collected from previously sampled private wells for N-15 and 0-18 isotope analyses to examine sources and fate of nitrate.

Sentinel observation wells: There were 30 observation wells drilled and constructed in:

- Odanah Shale in the southwest around Manitou, Swan River and Baldur;
- Shallow sand aquifers in south-central region, mainly Almassippi sands near Portage la Prairie, and,
- Shallow sand aquifers in the southwest.

Observation wells are in districts where substantial nitrate contamination was detected in farmyard wells; sampling was done to determine quality at locations away from farmyards.

The Branch was retained by PFRA to compile and summarize historical well infrastructure information from the provincial water-well database, GWDrill. Information, with that from Saskatchewan and Alberta, was used by PFRA to provide insight into the relationship between the nature and distribution of well infrastructure, patterns of groundwater development, major geographical influences, and changing demographics patterns of groundwater reliance. Results of the collaborative effort are presented in PFRA's report, ***Rural Water Well Infrastructure Assessment on the Prairies: An Overview of Groundwater Development and Reliance Trends***.

Table WA.7
12-3(a)-5 Groundwater Management

Expenditures by Sub-appropriation	Actual 1999/00 $	Estimate 1999/00 FTE	Estimate 1999/00 $	Variance Over/(Under)	Expl. No.
Total Salaries and Employee Benefits	715.7	15.00	801.4	(85.7)	
Total Other Expenditures	718.3		661.9	56.4	

Waterway Maintenance

Waterway maintenance activites for the Water Resources Branch are performed by Regional Engineering and by Branch staff. Regional Engineering subdivides the activities into three general categories: water allocation, flood damage reduction and waterway maintenance including associated labour costs. All Regions operate dams as directed by the Branch including maintaining the facilities. Flood damage reduction activities mitigate flood damages and maintenance of such structures and equipment to ensure future service to the public. Water maintenance activities maintain provincial waterways and waterway crossings providing service primarily to the agricultural sector. Drainage licensing and enforcement of **The Water Rights Act** are also performed by Regional Engineering.

Water Resources Branch head office waterway maintenance activities are directed to a broad scope of water management issues such as spring snow surveys, addressing litigation matters, special studies for waterway maintenance and other water infrastructure projects including development of provincial standards and monitoring the safety of provincial dams. Other waterways issues identified by municipal officials are addressed by a contingency fund set aside for such purposes. The cost of providing engineering data to other government agencies, the public and the private business sector is also funded under waterway maintenance.

Table WA.8
12-3(a)-6 Waterway Maintenance

Expenditures by Sub-appropriation	Actual 1999/00 $	Estimate 1999/00		Variance Over/(Under)	Expl. No.
		FTE	$		
Total Other Expenditures	3,601.7		3,931.5	(329.8)	

Chapter 6

Parks and Natural Areas Branch

The Branch is the steward of Provincial Parks and natural areas, managing for the long-term benefit of Manitobans and the environment. Provincial Parks and natural areas preserve unique and representative natural, cultural, and heritage resources, conserve ecosystems, and provide recreational and educational opportunities.

Administration

The section establishes priorities and guidelines, ensures conformity to Department policies and government goals, and assesses effectiveness of programs and products. It provides administrative support, personnel duties, and monitors fees from Park users, commercial concessions, and leased properties. Work programs are reviewed to ensure that goals are met, and that expenditures conform to estimates, legislation, and Department policies.

Grants were conveyed to International Peace Garden, Manitoba Wildlife Foundation (upkeep and public programs at Fort Whyte Centre for Environmental Education), and Federal-Provincial Parks Council (promotion and management of parks).

Table PA.1
12-3(b)-1 Administration

Expenditures by Sub-appropriation	Actual 1999/00	Estimate 1999/00		Variance Over/(Under)	Expl. No.
	$	FTE	$		
Total Salaries and Employee Benefits	411.6	6.04	414.1	(2.5)	
Other Expenditures	270.2		277.6	(7.4)	
- Grants/Transfer Payments	134.0		134.0	0.0	
Total Other Expenditures	404.2		411.6	(7.4)	

Planning and Development

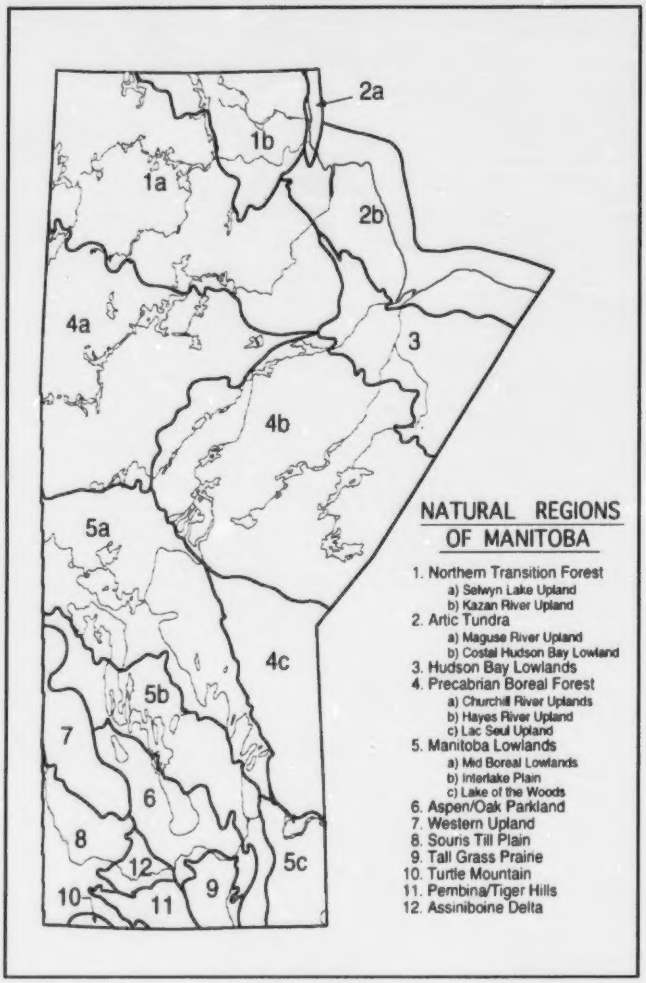
The section ensures that the system of provincial parks, Ecological Reserves, and other protected areas, preserves unique and representative natural and cultural resources, conserves flora, fauna, and other resources, and provides outdoor recreation and education facilities and opportunities.

The section prepares long-range management plans and policies. It implements parks programs, site designs, and ecologically significant areas programs, prepares regulations under ***The Provincial Parks Act*** and ***The Ecological Reserves Act***; identifies prospective parks and other protected areas, and manages joint provincial/federal initiatives for new national parks and Canadian Heritage Rivers.

The Section manages the Protected Areas Initiative a program to establish a network of protected areas representing the diverse landscapes of the province.

System Planning

The System Plan is a broad management framework, summarizing major land uses in each provincial park, describing its classification, purposes, and natural landscape. The plan assures an organized approach to long-term protection, use and development. It is expected that the Plan will be a useful reference tool, making general information about provincial parks easy to find.


NATURAL REGIONS OF MANITOBA

2a
1b
1a
2b
4a
3
4b
5a
4c
5b
7
6
8
5c
12
9
10
11
1. Northern Transition Forest
a) Selwyn Lake Upland
b) Kazan River Upland
2. Artic Tundra
a) Maguse River Upland
b) Costal Hudson Bay Lowland
3. Hudson Bay Lowlands
4. Precabrian Boreal Forest
a) Churchill River Uplands
b) Hayes River Upland
c) Lac Seul Upland
5. Manitoba Lowlands
a) Mid Boreal Lowlands
b) Interlake Plain
c) Lake of the Woods
6. Aspen/Oak Parkland
7. Western Upland
8. Souris Till Plain
9. Tall Grass Prairie
10. Turtle Mountain
11. Pembina/Tiger Hills
12. Assiniboine Delta

Network of Protected Areas

This program is building a network of protected areas that are representative of natural regions, and is guided by the ***Action Plan for Manitoba's Network of Protected Areas***. By excluding timber harvesting, hydro-electric, mining, and petroleum development, and other activities that significantly and adversely affect habitat, it is understood that biodiversity will be maintained. Areas of special interest have been identified in Natural Regions 1a, 1b, 2a, 2b, 3, 4a, 4b, 4c, 5a and 5b. (New areas of special interest will be identified for Natural Regions 5c, 6, 7, 8, 9, 10, 11 and 12 in the near future.) A geographic information system is used to identify and evaluate potential areas.

Protected areas can include all or parts of Ecological Reserves, Parks, Wildlife Management Areas (WMAs), private and federal lands, and lands held by other agencies and organizations. Park Reserves at Poplar/Nanowin Rivers and Chitek Lake were extended for five years. Support from First Nations and industry groups will result in the creation of several Park Reserves next year. As well, over 20 WMAs have been assessed and show promise for becoming protected areas. The ***Action Plan*** is being revised, for release in spring 2000. A website for Protected Areas Initiative is being developed, for release in April 2000. Consultations continue for establishing a national park in Manitoba Lowlands. Mining and forestry industries, communities, and environmental organizations are consulted in selecting protected areas. The Memorandum of Understanding signed with First Nations organizations is the basis for extensive First Nations community-based consultations.

Management Planning

The Provincial Parks Act requires creation of a management plan for each Provincial Park. Plans are working tools for managers in making decisions on many of the major issues they face. Public involvement is integral to plan preparation. A strategy for preparation of management plans was initiated.

Planning for Atikaki Provincial Park is underway. A report on public drop-ins (held in 1998) was prepared and distributed and a draft Plan is being prepared.

Preparation of a plan for Grand Beach Provincial Park was initiated. Public drop-ins to identify issues were held and; preparation of a draft Plan began.

Legislation and Regulations

The *Park Reserves Designation Regulation* enables Crown land to be designated for six months, and renewed for five years, while public consultations clarify such issues as boundaries and management, ultimately determining whether designation as a Park is warranted. The *Regulation* was amended several times to designate:

- Chitek Lake and Poplar/Nanowin Rivers Park Reserves, for five years (the initial 6-month designation was in 1998-99).
- Duff Roblin Park Reserve, for six months, then five years.
- Long Point Park Reserve, for six months: this Reserve was allowed to lapse because of First Nations concerns.

Design and Development

This program area provides development direction, capital management, site planning, and public facility design and mapping. Staff participated in the Watchable Wildlife Working Group which developed a viewing guide, ***Pelicans to Polar Bears*** (published 1999), and in the Interdepartmental Recreational Trails Committee.

Major projects included the Hecla Historic Lands Resettlement plan complete with architectural/landscape guidelines, Hecla harbour studies, Lyons Lake development (with Fish Futures), Spruce Woods Visitor Centre landscaping, several campground expansions for Central and Eastern Regions, and West Hawk Lake fish hatchery site and visitor centre and a variety of plans to guide small redevelopment projects throughout the park system. A development strategy for Falcon Lake Waterfront was initiated.

Pan Am Games development continued at Birds Hill, in preparation for equestrian, triathlon, cycling and rollerblading events and lead to very successful venues in the park.

Work continued on Duff Roblin Provincial Park with an opening ceremony held in June.

The 1999 summer and winter Park maps were revised, printed and distributed. A number of campgrounds were field-checked for map accuracy and three summer maps were prepared.

Ecologically Significant Areas Program

The Ecological Reserves Advisory Committee met six times to priorize candidate sites and review nomination proposals; eleven sites were recommended to the Minister for designation.

Canadian Heritage Rivers System

This program manages rivers that satisfy the criteria of the Canadian Heritage Rivers System, giving national recognition in order to conserve and interpret outstanding river heritage. Current Canadian Heritage Rivers are the Seal and the Bloodvein.

Work began for the 10-year monitoring report on Bloodvein River, to determine what changes have occurred to the natural, cultural, and recreational values for which the river was nominated. The Management Plan for the Bloodvein will be updated through planning for Atikaki.

Planning and consultation for nomination of Hayes River was completed, including discussions with First Nations and stakeholders, and public information distribution. The nomination was submitted to Canadian Heritage Rivers Board.

National Parks Initiatives

Consultations on establishment of a four-component Manitoba Lowlands National Park continued with First Nations communities and stakeholders. A Provincial Park Reserve was established for six months on a portion of the Long Point component to protect the area from major industrial developments. Discussions are continuing with First Nations affected. Discussion with Manitoba Hydro on possible transmission line corridors through the Long Point area continue.

Interpretation

This Program offers visitors a deeper understanding and appreciation of Parks' natural and cultural resources, and the Department's goals and programs. Live field programs, complemented by publications, outdoor exhibits, and audio-visual materials, bring visitors in contact with park resources and management.

Delivery of the field program includes a full-time interpreter at Birds Hill, and 21 seasonal (May-September) interpreters at Spruce Woods, Hecla/Grindstone, Birds Hill, Grand Beach, Whiteshell, St. Norbert, Lockport, Turtle Mountain and Paint Lake. A total of 17 Green Team members assisted. Interpreters contacted 85,246 visitors at field programs and in interpretive centres and museums.

Whiteshell and Birds Hill Park maps, and brochures for McGillivray Falls, Foresters Footsteps, Petroforms of Manitoba, and Spirit Sands, Cedar Bog, and Nimowin Self-Guiding Trails, were revised and printed. Duff Roblin provincial signage was completed for the entrance, two kiosks, and two hiking trails, as was a bronze plaque that commemorates the opening and a brochure. Small interpretive signs were upgraded at Birds Hill. New orientation/welcome and interpretive signs were produced for St. Norbert Park. A new trailhead structure and sign were installed at Bannock Point petroform site in Whiteshell. A map was developed for Camp Morton Provincial Park.

Displays for the new Spruce Woods Interpretive Centre were installed, and a bookstore, interpreters' workshop and amphitheatre opened to the public.

White Pine self-guiding trail was redeveloped and renamed Whiteshell River Self-guiding Trail. A brochure, funded by the estate of Alice Chambers is in production. Resource packages were completed for the Old Pinawa Self-guiding Trail, including signage and brochure, an interpretive trail at Lockport, and for new exhibits at West Hawk Lake Fish Hatchery Visitor Centre.

Other signage projects included revision of the Spirit Sands/Devils Punch Bowl feature signs and redesign of the Beaudry kiosk and trailhead signs.

Numbers of Visitors Contacted by Interpretation (per year)

1990-91 - 1999-00 10 Year Average	1995-96 - 1999-00 5 year Average	1999-00
77,604	87,904	85,246

Table PA.2

12-3(b)-2 Planning and Development

Expenditures by Sub-appropriation	**Actual 1999/00**	**Estimate 1999/00**		**Variance Over/(Under)**	**Expl. No.**
	$	**FTE**	**$**		
Total Salaries and Employee Benefits	805.8	17.00	837.8	(32.0)	
Total Other Expenditures	248.2		246.8	1.4	

Park Districts

Park Districts administers the Vacation Home Lot Program, commercial operations, landuse activities, water quality, and sewage and solid waste disposal. An accounting system tracks costs of road maintenance, garbage handling, and water, sewer and other services to lessees, permittees and private landowners. Budgets were developed to determine service fee levels.

Vacation Home Program

The Program administers about 6000 vacation homes on leased, permitted and private lands in Parks. A total of 442 assignments and 107 collateral security recordings were processed, 80 leases were renewed, 442 new leases issued, and 359 permits issued for cottage construction or structural modification. This program generated $4.3 million in revenue. There were 298 lease inspections carried out. A total of 167 lot developments were inspected in Whiteshell.

Commercial Operations

This unit manages relations with private-sector operators to ensure high-quality services for visitors. A total of 156 commercial operations provide such services as restaurants, stores, accommodation, golf courses, marinas, and beach concessions. Also, 44 special-consideration organizations conduct educational and religious programs.

Land Use Activities

Permits were issued for commercial fishing, wild rice cultivation, trapline cabin construction, hay and grazing, scientific research, and mineral claim-staking and exploration.

Water Quality Control and Sewage and Solid Waste Disposal Program

In the five-year program, 933 cottage lots were inspected in Falcon lake, Otter Falls, Eleanor, Dorothy Nora, Florence and George Lakes in Whiteshell, of which 60 violated ***The Environment Act***. Private sewage disposal systems in subdivisions continued to be the major focus. Installation approval was granted for 73 holding tanks, 18 septic tanks and fields, 5 septic tank replacements, 2 septic field replacements, and 8 sullage pits.

Table PA.3
12-3(b)-3 Park Districts

Expenditures by Sub-appropriation	Actual 1999/00	Estimate 1999/00		Variance Over/(Under)	Expl. No.
	$	FTE	$		
Total Salaries and Employee Benefits	453.2	11.00	442.0	11.2	
Total Other Expenditures	71.1		71.6	(0.5)	

Park Operations and Maintenance

Regional Operations Division operates and maintains Parks to provide high-quality, safe and enjoyable outdoor recreational and educational opportunities, while ensuring compliance with provincial laws.

Table PA.4
12-3(b)-4 Park Operations and Maintenance

Expenditures by Sub-appropriation	Actual 1999/00	Estimate 1999/00		Variance Over/(Under)	Expl. No.
	$	FTE	$		
Total Salaries and Employee Benefits	9,750.4	229.27	9,893.7	(143.3)	
Total Other Expenditures	4,110.5		4,376.1	(265.6)	

Support Services

The section guides and supports Regional Operations in ensuring high-quality outdoor recreational experiences. This includes analysis of operating strategies and procedures, policy review, market research, marketing strategy development, promotion, and statistical compilation and trend evaluation. The program designs, implements, and evaluates new initiatives in campground, day-use, and backcountry management, as well as customer-service training and volunteer activities.

Marketing

Initiatives included developing and implementing a comprehensive promotional strategy with Manitoba Culture, Heritage and Tourism, a satisfaction survey of transient campers, reprinting ***Manitoba Magic: Provincial Parks Guide***, production of Parks Reservation Service, Family Vacation Cabins, and Fall Camping brochures, and a full page ad in Woodall's North American campground directories. Newspaper advertisements, news releases, and handouts promoted Park programs and initiatives, including opening and closing dates, May long-weekend liquor-free camping, Reservation Service, family vacation cabins, and fall camping. Staff participated in federal and provincial tourism committees and workshops to improve positioning in tourism strategies and promotional campaigns, including a symposium on market research. The section participated in the Mid-Canada Boat, Cottaging and Camping, and RV Shows, to increase awareness of Parks and Park programs.

Camping Programs

Camping numbers equalled those in the outstanding-weather year of 1998; transient camping unit nights and revenues remained constant. More seasonal campsites were sold (819 basic service, 481 electrical service and 115 full service). There were 119 Permanent Trailer Village sites at Dorothy, Falcon and West Hawk Lakes renewed, as well as 13 concessionaire sites in Falcon/West Hawk districts.

The Reservation Service placed more campers onto sites through reservation. Over 25,000 reservations were made, a significant increase from 1998 (17,000). Regular campsites, family vacation cabins, and group-use areas are available for reservation.

New initiatives included:

- Expanding Parks Reservation Service capacity from 38 to 48 locations, and offering expanded group-use site bookings, through Winnipeg call centre,
- Co-ordinating delivery of Manitoba Best Customer Service training program to management and staff, and,
- Introducing fall camping at certain campgrounds, including continued services and fee collection.

Table PA.5
12-3(b)-5 Support Services

Expenditures by Sub-appropriation	Actual 1999/00 $	Estimate 1999/00 FTE	Estimate 1999/00 $	Variance Over/(Under)	Expl. No.
Total Salaries and Employee Benefits	196.9	4.00	192.5	4.4	
Total Other Expenditures	146.7		115.2	31.5	

Chapter 7

Policy Co-ordination Branch

The Branch co-ordinates and integrates departmental policy, natural resource allocation and Crown land-use planning, environmental impact assessment, legislative interpretation, and co-management, in accordance with principles of sustainable development. The Branch monitors cross-boundary water projects, administers licensing of resource-based tourism facilities, represents the Department in issues related to internal and international trade agreements, provides support on communications issues, co-ordinates preparation of Ministerial correspondence, and co-ordinates departmental settlements and litigation arising out of hydro-electric and water-control projects and Treaty Land Entitlement.

Integrated Directors Group Review Process

The Branch is secretariat to Integrated Directors Group, which establishes procedures for integrating management of natural resources, consistent with sustainable development.

This process co-ordinates review and development of departmental positions on resource management issues, including ***Environment Act*** proposals, land subdivisions, Crown oil and natural gas lease sales, highways proposals, applications to Sustainable Development Innovations Fund and Special Conservation Fund, and applications to the Licensing Advisory Committee.

This mechanism assists the Branch in providing strategic planning, analytic, economic and evaluative support services to assist management to improve effectiveness of departmental programming, Crown land-use planning and resource allocation. This includes:

- Participating in developing options and implementation strategies to assist the Department to achieve the goals of the 1999/2000 Estimates Review,
- Managing the Department's assessment of development proposals under ***The Environment Act*** and the ***Dangerous Goods Handling and Transportation Act***, and submitted by other agencies and businesses, and pre-screening proposals from Manitoba Highways and Government Services,
- Development of sustainability indicators for the ***Provincial Sustainability Indicators Report***, under ***The Sustainable Development Act***,
- Integrating Conservation policies and programs with other departments, including inter-departmental and inter-governmental committee participation. This includes supporting the Crown Land Classification Committee. As secretariat to the Committee, the Branch, in conjunction with regional Bloc Planning Committees, maintains and administers the system of operational coding on Crown Land, and prepares Provincial Crown Land Plans. The Branch also administers the Committee's system of review and determination on the disposition (sale, exchange, designation by Order-in-Council) of Crown lands, and formulates policy and procedures for other issues involving Crown lands. The Committee reports to the Provincial Land Use Committee of Cabinet,
- Assisting planning, management and use of all Crown resources (wildlife and fish, surface and ground water, forests, minerals, outdoor recreation and ecological resources, Crown lands) by co-ordinating preparation of reports for municipalities and planning districts, and otherwise responding to requests for studies, maps, and statistical compilations required to properly allocate resources,
- Participating in review of annual operating plans of Forest Management Licensees and forest renewal strategies,
- Reviewing applications for funding under Sustainable Development Innovations Fund, the Special Conservation and Endangered Species Fund, and Fisheries Enhancement Initiative Fund,

- Co-ordinating licensing of resource-based tourism facilities and services, such as hunting and fishing lodges, outfitters, and eco-tourism,
- Assisting development of Fish and Wildlife Sustainable Development Strategies, particularly in respect of preparation for public review, as part of the Land and Water Strategy, and,
- Participating in the Geographic Information Systems Committee, which seeks to ensure that the Department's long-term GIS needs are met.

Legislation and Litigation

The Branch provides co-ordination for Headquarters Operations, Regions, other Branches, departments and agencies on new and amending legislation, both provincial and federal, and on litigation. An advisory service on interpretation and application is provided to the Department and the public.

The Branch participated in development and signing of a Memorandum of Understanding with Canada for management, administration and enforcement of the ***Wild Animal and Plant Protection and Regulation of International and Interprovincial Trade Act***.

Co-Management

The Branch develops policy, procedures, and guidelines for co-management of natural resources with First Nations communities and organizations, facilitates negotiation and leadership of boards and committees, and integrates departmental participation in agreements. The Branch:

- Co-ordinates consultation with First Nations and northern communities on resource allocations for lodges and outfitters,
- Sits on Norway House Resource and Nelson House Management Boards for integrated land and resource use in their Resource Management Areas,
- Reviews Northern Flood Agreement resource management agreements and co-ordinates departmental input and requirements, and,
- Acts as liaison with other Provinces.

Trans-boundary Water Projects

The Branch monitors development of international and inter-provincial water projects, to protect Manitoba's interests and ensure protection of quality and quantity of water flowing into Manitoba.

The Transboundary Waters Office represents Manitoba interests relating to waters crossing the International Boundary. The Office has established a working relationship with Canadian, American and international agencies and officials. It represents Manitoba on the United States-Canada Consultative Group on Garrison, coordinates interdepartmental input and analysis of proposals related to the Garrison Diversion Unit and Devils Lake, liaises with the International Joint Commission, monitors activities of I.J.C. Boards and coordinates Manitoba responses. The Office works closely with Foreign Affairs and Environment Canada in developing and presenting Canadian positions to United States.

Watershed Management Projects

Manitoba, represented in part by the Branch, has engaged with other Departments (Aboriginal and Northern Affairs, Intergovernmental Affairs), City of Winnipeg, Ontario, First Nations, and Canada, in considering creation of a management plan for the Shoal Lake watershed. Several meetings have resulted in shared information and determination of general principles to guide preparation of the plan, which will include water quality concerns. The Branch has contributed resource-related information and has worked with Eastern Region and Ontario to prepare a G.I.S.-based map inventory of resource data for the Manitoba side of the watershed.

Licensing Advisory Committee

The Branch provides secretariat, and Chair, for Licensing Advisory Committee (LAC). The Committee, which includes representation from the Branch, Regional Operations and Environment Divisions, Manitoba Culture, Heritage and Tourism, and Manitoba Aboriginal and Northern Affairs, makes recommendations to the Minister on licensing resource-based tourism facilities, which include hunting and fishing lodges and outcamps, outfitter services, and eco-tourism ventures. About 1,100 licences are issued annually .

The Branch also serves as secretariat to the LAC Appeals Committee, which provides an appeal mechanism for operators wishing to appeal a decision made by LAC.

Hydro-Electric and Water-Control Project Settlements

The Branch co-ordinates departmental input into settlements arising out of the Northern Flood Agreement, outstanding matters relating to Grand Rapids Forebay development, Fairford River control structure, and other claims by First Nations resulting from hydro-electric or water-control projects. Negotiations with Cross Lake First Nation regarding the Northern Flood Agreement were reopened and are progressing.

Treaty Land Entitlement

The Branch represents the Department on Treaty Land Entitlement issues. Activities include:

- Development of policies, including selection criteria, with respect to availability of provincial Crown land for Treaty Land Entitlement settlements;
- Formation of technical working groups to implement the Agreement and facilitate land transfers.

Other Programs

The Branch is supervising a project to resolve long-standing problems in Big Grass Marsh area.

The Branch represented the Department in a multi-department Lands Related Information System initiative, to develop a government-wide framework for managing lands-related information. This initiative (Manitoba Lands Initiative, MLI) offers an "in-house" approach to sharing GIS data across government.

The Branch represents the Department in trade matters related to the Agreement on Internal Trade, NAFTA and GATT/WTO trade agreements. Activities include representing the Department in development and implementation of the Processing of Natural Resources chapter of the ***Agreement on Internal Trade***, co-ordinating activities associated with implementation of NAFTA, monitoring trade developments in resource issues, and conducting liaison with other departments and jurisdictions on trade matters involving resources.

The Branch coordinates negotiations with forestry companies to increase opportunities for sustainable use of forest resources.

The Branch co-ordinates preparation of Ministerial correspondence in respect of Parks and Natural Areas, Forestry, and Wildlife.

Table PC.1
12-3(c) Policy Co-ordination

Expenditures by Sub-appropriation	Actual 1999/00	Estimate 1999/00		Variance Over/(Under)	Expl. No.
	$	FTE	$		
Total Salaries and Employee Benefits	740.9	13.75	779.0	(38.1)	
Other Expenditures	147.2		162.6	(15.4)	
- Grants/Transfer Payments	10.2		10.2	0.0	
Total Other Expenditures	157.4		172.8	(15.4)	

Chapter 8
Forestry Branch

The Branch plans, manages and allocates forest resources for the long-term social, economic, and environmental benefit of Manitobans. Crown forests are managed sustainably for all users; harvest and renewal are implemented in a manner which conserves ecosystem diversity. To limit widespread tree mortality and timber losses, levels of protection are provided commensurate with social, economic, and environmental values at risk. The Branch encourages diversification and growth of the forest industry, emphasizing efficient utilization. The Branch advises and assists the public and industry in forest health and ecology for provincial Crown land, private woodlots and urban forests.

Administration

The section oversees activity effectiveness to meet goals, reviews Crown Forest Management Plans, and guides and informs Regional managers and enforcement personnel on policies and procedures. The Section prepares annual estimates, provides financial and personnel services, co-ordinates development of the annual work plan and administers grants to such co-operating agencies as Manitoba Forestry Association and Manitoba Habitat Heritage Corporation.

The first phase of a new Website was completed. Staff worked with Manitoba Forestry Association to deliver a three-day workshop for teachers (*Forest-Ed*), and an environmental education competition, *Envirothon*.

Participation continued on the advisory committee for Manitoba Hydro's Forest Enhancement Program. This committee provides direction on annual allocation of over $340,000 to community and non-profit tree planting, research, and forest education.

The Manitoba Model Forest project was supported by in-kind contributions and two representatives who sit as Directors.

Table FO.1
12-3(d)-1 Administration

Expenditures by Sub-appropriation	Actual 1999/00	Estimate 1999/00		Variance Over/(Under)	Expl. No.
	$	FTE	$		
Total Salaries and Employee Benefits	311.5	7.00	311.9	(0.4)	
Other Expenditures	289.9		319.4	(29.5)	
- Grants/Transfer Payments	465.8		465.8	(0.0)	
Total Other Expenditures	755.7		785.2	(29.5)	

Forest Resources Management

The Section assures sound management by mapping and determining type and productivity of forest stands, and tracking changes due to fire, harvesting and other impacts. Harvest is managed through regional staff by setting harvest levels and planning requirements through plan approvals, discussions, and inspections.

Software and hardware were replaced to more effectively operate the Geographic Information System, manage the Forest Resource Inventory (FRI) database and conduct resource evaluations. Updates to FRI included re-inventory of Forest Management Units 31 and 35 in Pine Falls Paper's Forest Management Licence Area, re-digitizing Provincial Park boundaries, and processing fire depletion in 1976-97. FRI responded to information requests from Department staff, industry, consultants, academics, and the public.

The Forest Practices Initiative, to establish best-practices management guidelines, significantly progressed on guidelines to protect softwood understory in hardwood stands, forest road management, and pre-harvest surveys. Developed in consultation with other Branches and industry, these guidelines will critically link policy, regulations, operations, and inspections.

The tabular component of Manitoba Silviculture Information System was completed for reporting depletion and silvicultural activities. The system will track all forestry activities, providing current information to Regional and industry managers. The GIS component, to be developed, will link tabular records to maps for comprehensive reporting and to maintain the FRI.

Pine Falls Paper Company and Tolko Industries hired contract surveyors for regeneration surveys, and staff to check survey results. The Branch provided testing for contract and company surveyors. Pine Falls completed surveys with two individuals who obtained Regeneration Surveyor Licenses. An audit of Pine Falls surveys and check surveys was successful, with Certificates of Reforestation being issued. Regeneration surveys, to determine success of forest renewal, were performed on 8,909 ha. The Branch surveyed 4,193 ha while licensed regeneration surveyors from Tolko surveyed 3,043 ha, and Pine Falls Paper surveyed 1,673 ha. Tolko subsequently cancelled their survey program due to lack of licensed surveyors; unsurveyed areas will be completed next year.

The Branch performed Free-to-Grow (FTG) surveys on softwood-dominated forest stands, 15-20 years old, to determine if they are developing appropriately. Two techniques were used, full and extensive. Full-survey technique was used on 2,571 ha and extensive technique on 873 ha. Draft documents were provided to industry, detailing the proposed strategy for implementing FTG surveys. Branch staff trained surveyors from Tolko Industries to perform FTG surveys.

Digital orthophotos (received in 1998) improved base-mapping accuracy in Forest Management Units 31 and 35. Land Information Division continued to collect vector information for base features such as roads, rivers, lakes, and utility corridors.

Transfer of typed photographs onto plotted digital orthophotos continues in advance of digitizing into the GIS. Photointerpretation of all FMU 35 and 60% of FMU 31 was completed, including identification of additional attributes such as moisture class, landform, height, year-of-origin and ten-percent crown-closure classes. Phototyping of black and white aerial photography in FMU's 20 and 23 was initiated and finalized.

A technical advisory committee, including industry, completed a draft report on inventory needs and an ecologically-based design for new inventory. The committee will present findings and recommended approach to industry and staff. Discussion began with Louisiana-Pacific to develop a joint inventory pilot project, which will test attributes and procedures prior to implementing a new approach for the province.

Space Imaging Carterra Analyst software was beta tested to determine use of new technology for updating forest inventory attributes. Technology around use of soft copy continues to develop; review of new technology and applications will continue.

Annual Operating Plans were submitted by the Forest Management Licensees, Tolko Industries Limited, Louisiana-Pacific Canada, and Pine Falls Paper Company. Comments were provided with AOP approval.

A team was established to evaluate development of Pine Falls Paper Company's proposed ten-year Forest Management Plan. Ten-year Forest Management Plan Submission Guidelines were developed to ensure the Plan will be consistent with provincial policy, practices and standards for sustainable forest management. In support of this project, Wood Supply Analysis and Verification Requirements was developed and assumptions and inputs proposed for the "Woodstock" model were reviewed.

Growth and yield databases were consolidated and updated and a major effort to accelerate development of yield equations for wood supply analysis was initiated. The program focused on collection of data through stem analysis and re-measurement of permanent sample plots. A technical committee, established with industry and the Manitoba Model Forest, advises on developing a program for growth and yield. A stand origin layer Request for Proposal was developed, for release next year. The supply analysis proposed for Pine Falls Paper Company was evaluated.

Sites selected by First Nations under the TLE Framework Agreement and candidate sites for Protected Areas Initiative were evaluated.

Table FO.2
12-3(d)-2 Forest Resources Management

Expenditures by Sub-appropriation	**Actual 1999/00**	**Estimate 1999/00**		**Variance Over/(Under)**	**Expl. No.**
	$	**FTE**	**$**		
Total Salaries and Employee Benefits	990.4	18.00	979.4	11.0	
Total Other Expenditures	566.4		701.8	(135.4)	

Forest Health and Ecology

The Section protects forests from damage by insects, disease and other factors, assists wildfire management, ensures all harvested Crown forest land is renewed to maintain ecosystem integrity and biodiversity, and advises and assists the public and industry on forest health and ecology.

The forest renewal program delivered by Regional Operations is administered and co-ordinated (Table FO.6). The Department and industry carried out forest renewal treatments on 10,584.4 ha, including retreatments. Most of the area was planted, using 13.6 million trees, with scarification to promote natural regeneration on the rest (Table FO.6). Except for some Department planting in Eastern Region, delivery was through tendered contracts.

Of 15,544 ha harvested in 1997-98, 65% (10,054 ha) was treated for reforestation, and the rest left to regenerate naturally or be treated in future. Expanding harvest of poplar (about 28% of harvested area over the past five years) has increased the area left to regenerate naturally, as poplar regenerates readily from root suckering. Approximately 530 ha of harvested area that had not restocked sufficiently was retreated by planting.

The Section maintains the pool of site-preparation equipment and co-ordinates use with Regional Operations. Renewal technology transfer to Regional staff is provided through field trials and promoting innovation. Regional renewal programs are also supported through administration and co-ordination of silviculture contracts and assisting planning and delivery of vegetation management.

Surveys, efficacy tests, and research on significant insects and diseases was conducted. Significant pests included spruce budworm, jack pine budworm, elm bark beetles, western gall rust, armillaria root rot, and pine root collar weevil. Forest health data was collected in regeneration, free-to-grow and pre-harvest surveys, to develop management prescriptions and track substantially infected stands.

Spruce budworm infested about 77,105 ha. About 19,988 ha of spruce/fir were moderately to severely defoliated in Pine Falls Paper's Forest Management License Area (FMLA), and in Nopiming, Whiteshell, and Hecla/Grindstone Provincial Parks. This was much less than the 57,505 ha infested here last year. Infestation in Duck Mountain Provincial Forest, in Louisiana-Pacific's FMLA, increased to 10,559 ha. Infestation in northwest, in Tolko's FMLA, expanded to 42,859 ha. The outbreak in Spruce Woods decreased slightly to 3,688 ha. Emergency funding was provided to enable spraying biological insecticide, *Mimic*, on 7,094 ha in Lac du Bonnet, Sandy River and Wanipigow Lake areas (Pine Falls' FMLA), and 13,534 ha in Rocky/Athapapuskow Lake area (Tolko).

Fire Program is assisted by identifying values at risk, reviewing Forest Management Licencees' annual fire control plans, and participating in Canadian Forest Service's National Fire Database mapping.

Dutch Elm Disease (DED) management seeks to reduce annual mortality to 3% or less by cost-shared agreements with municipal governments. A total of 21,202 elms were removed from 38 cost-share communities and seven urban-buffer-zone municipalities. Urban centres include Brandon, Portage la Prairie, Morden, Winkler, Dauphin, Steinbach, and Selkirk. There were 16,598 elms marked for removal in cost-share communities and Winnipeg buffer zone (which, through emergency funding, was expanded). High levels of DED persist along rivers, especially Red and Assiniboine Rivers; Boyne River (near Carman), and Souris River riparian zones remain extensively infected.

Measurement of decay in aspen forests continued in support of the growing hardwood industry. Jack pine budworm populations remained low.

Table FO.3

1999/2000 Forest Renewal Activities

	Manitoba Conservation	Pine Falls Paper	Tolko Manitoba	Louisiana-Pacific Canada	Total
Area Treated (hectares)	2,115.9	1,402.0	5,316.0	1,220.1	10,054.0
Area Retreated (hectares)	335.0	7.5	0.0	187.9	530.4
Total Treated Areas	2,450.9	1,409.5	5,316.0	1,408.0	10,584.4
Total Trees Planted (1000s)	**4,107.6**	**1,054.5**	**6,503.0**	**1,956.4**	**13,621.5**
Total Area Site Prepared for Renewal Treatment (hectares)	2,450.9	2456.5	4056.0	1,408.0	10,371.4
Total Area Tended (hectares)	58.8	112.0	616.0	0.0	786.8
Total Cones Collected (hectolitres)	5.0	0.0	60.0	2.0	67.0

The Section works with University of Winnipeg Centre for Interdisciplinary Forest Research and Pine Falls Paper to compare effects of harvest and natural disturbance on biodiversity, using arthropod indicators. There were 17 plots established and sampled. Data was collected on Lepidoptera (moths and butterflies), Coleoptera (carabid beetles) and soil arthropods (mites). Over 3000 lepidoptera specimens, comprising 40 butterfly and skipper species, were collected, as were over 3000 beetle specimens, and over 800 soil samples for mite extraction. All plots will be resampled next year.

A tree-improvement program was implemented in five Provincial and seven co-operative programs under Manitoba Tree Improvement Co-operative, with Tolko Manitoba, Pine Falls Paper, and Louisiana-Pacific. A total of 4,168 *Plus* trees have been collected, to establish 75 ha of family tests and 66 ha of seed orchards. A co-op program with University of Manitoba identifies and screens large, surviving American Elm trees to study resistance to Dutch Elm Disease.

Table FO.4
12-3(d)-3 Forest Health and Ecology

Expenditures by Sub-appropriation	Actual 1999/00 $	Estimate 1999/00 FTE	Estimate 1999/00 $	Variance Over/(Under)	Expl. No.
Total Salaries and Employee Benefits	1,727.1	24.06	1,565.5	161.6	
Total Other Expenditures	2,469.8		2,675.0	(205.2)	

Forest Economics and Marketing

The Section ensures that consumption of Crown timber is consistent with legislation and administrative requirements for benefit of the industry and Manitobans. Holders of three Forest Management Licenses, 176 Timber Sale Agreements, and 2,629 Timber Permits cut 63,597m^3 of Crown timber. This generated Crown revenue of $6.4 million (of which Timber Dues accounted for $4.4 million, and provided employment for 2500 to 3000 people directly in primary industry, with 3,000 to 5,000 additional jobs sustained indirectly.

Pine Falls Paper Company began constructing a Therma-mechanical Pulp mill, expected to be operational by mid-2001. The new mill will allow increased use of pine and may facilitate some hardwood use. Tolko Industries continued sawmill upgrading, adding a small log optimizer, new kilns and sorters. Spruce Products' new sawmill became operational.

A ten-year Quota Policy review was conducted in consultation with quota-holders. The policy remains largely unchanged, but the review period was reduced to five years. A review of the Timber Sales process was initiated, aimed at increasing efficiency and providing information required by clients. A forest industry economic assessment, contracted to KPMG, was completed.

Louisiana Pacific enjoyed strong demand for oriented strandboard, with record-high prices. Output of this product surpassed plywood in the North American panel market for the first time.

The Metric Scaling License Certification Course was held in Swan River, with 24 participants, and Spruce Products and Louisiana Pacific hosting the field portion. All candidates passed, earning their Metric Scaler's Licence.

The Manitoba Forest Product Price Index, used to reappraise timber dues annually, decreased just under 1%. Derived from Statistics Canada's Industrial Product Price Indices for sawmills and pulp-and-paper industries, it is weighted to reflect Manitoba's Crown harvest of saw logs and pulpwood. This resulted in 10¢ decrease, to $1.45/m^3 for all wood (other than aspen/poplar) only in the Lake Winnipeg East Forest Section north of FML 1.

The check scaling program ensures that forest products are measured in accordance with ***The Forest Act*** and ***Regulation*** and Canadian Standards Association standards. Check scales were carried out at Tolko, Louisiana-Pacific, and Pine Falls mills. All company scalers were checked for scaling proficiency and accuracy by the Chief Provincial Scaler. Check scales were also carried out at South East Forest Products, in the field rather than at the mill. All check scales were within the ±3% allowance specified by the Manitoba Scaling Manual.

Manitoba Habitat Heritage Corporation (MHHC) and Manitoba Forestry Association (MFA) were again assisted to provide woodlot programs. Activities include provision of management plans, workshops and field days, individual and community tree plantings, joint projects with Manitoba Agriculture and Food and Conservation Districts, and support for Woodlot Association of Manitoba and Manitoba Christmas Tree Growers Association. The woodlot program was evaluated to assess activity since termination of the Canada-Manitoba Partnership Agreement in Forestry (1995).

Staff cooperated with Manitoba Industry, Trade and Mines to monitor the Softwood Lumber Agreement. Forest product certification has become a marketing force and is expected to significantly impact some industries. The Branch continued participation in the Certification Working Group of the Canadian Council of Forest Ministers as part of a federal-provincial initiative to track certification developments and issues. Participation on National Forest Strategy included representation on the communications committee of National Forest Strategy Coalition.

Table FO.5
12-3(d)-4 Forest Economics and Marketing

Expenditures by Sub-appropriation	**Actual 1999/00**		**Estimate 1999/00**	**Variance Over/(Under)**	**Expl. No.**
	$	**FTE**	**$**		
Total Salaries and Employee Benefits	350.5	7.00	357.5	(7.0)	
Total Other Expenditures	68.3		60.9	7.4	

Forest Regeneration Stock

A total of 8.63 million seedlings were purchased for planting by Manitoba Conservation, Pine Falls Paper and Louisiana Pacific from Pineland Nursery and Brinkman and Associates. Tolko Manitoba purchases their own seedling requirements. This appropriation is also used for seed collection, extraction and storage, transporting seedlings to the field, and a stock identification system.

Table FO.6
12-3(d)-5 Forest Regeneration Stock

Expenditures by Sub-appropriation	Actual 1999/00 $	Estimate 1999/00 FTE	Estimate 1999/00 $	Variance Over/(Under)	Expl. No.
Total Other Expenditures	1,462.0		1,411.9	50.1	

Chapter 9

Fisheries Branch

The Branch ensures sustainable development of fisheries resources. Management programs are developed to provide the greatest benefits to Manitobans, by maintaining or enhancing populations and habitat, monitoring harvest and habitat alterations, and allocating resources for best return. The Branch directs and reports on programs and budgets, legislation and policy, standards and guidelines, and coordination and monitoring. The Branch also administers the Northern Fishermen's Freight Assistance Program.

Programs are implemented by Regional staff; Regional Fisheries Managers, under Operations Division, report to Regional Directors responsible for operational decision-making and program delivery.

The ***Five Year Report on Fisheries*** was completed and will be distributed to the Legislative Assembly. This reviews status and management of fish resources, 1994-95 to 1998-99, and examines challenges for maintenance and improvement.

A Sustainable Development Website was developed to integrate these concepts into the new Kindergarten-Grade 4 *Science: Manitoba Curriculum Framework of Outcomes*. The site is a Manitoba first in integrating fisheries information into a science curriculum via the Internet. The site was promoted at teacher workshops and conferences, including the Special Areas Group (Science) workshop. Work will continue with educators to develop exercises for Grades 5-8, for implementation in fall 2000.

A proposal was developed and funded for a Fisheries Information Network. A contractor was hired to consolidate databases to improve access and exchange of information with internal and external clients.

Work on the fisheries *Sustainable Development Strategy*, with Manitoba Round Table, completed Phase 2, release of *Workbook on Fish*. The *Workbook* comprised draft objectives, policies, and recommended government actions, derived from focus-group discussions with stakeholders, businesspersons, Aboriginal peoples, and the public. Phase 3, an extensive consultation/communication plan, provided opportunities for review and comment:

- Mailout of about 4,000 *Workbooks* with mail-in questionnaires,
- 21 workshops/presentations held by the Round Table fish panel,
- Receiving formal presentations and submissions.

Over 367 people attended workshops. The Round Table panel received 14 presentations, and 170 individuals completed questionnaires. There were 137 hits on the Fish Workbook Web site. From these responses, Phase 4, the *What You Told Us Fish Strategy*, was published. This document will be mailed to all who attended the workshops or submitted presentations.

The Branch participated in the national Recreational Fishing Working Group and co-chaired the national Freshwater Fish Strategy Working Group. These Groups, reporting to Canadian Council of Fisheries and Aquaculture Ministers, seek coordinated action plans that maximize management efficiency and effectiveness.

As requested by Prairie Provinces Water Board, Instream Flow Needs Committee compiled methods and experiences from prairie provinces and adjacent U.S. jurisdictions. The final report recommends using Tennant's or Tessmann's method to first establish flow requirements for fish. If all parties are not satisfied with these standards, the report recommends the proponent fund an incremental methodology study. The Branch is active on Instream Flow Council, an international group of experts, and assists development of policy and methodology.

Participation continued in the ecosystems based management (EBM) pilot project in Lac Seul Upland ecoregion (Ecoregion 90), east of Lake Winnipeg. Emphasis is on how to do many aspects of EBM, to develop procedures for government and private-sector resource managers. A Department Core Team co-ordinates, a Science Team is developing an ecological description, and a Values Team is researching public values. Fisheries staff participated on Core Team, advised Science Team on aquatic resources and socioeconomic activities, acted as primary Department contact for Values Team, and liaised between Values and Science Teams.

Administration

This section provides annual estimates, financial and personnel services, and administrative support.

Table FI.1

12-3(e)-1 Administration

Expenditures by Sub-appropriation	Actual 1999/00	Estimate 1999/00		Variance Over/(Under)	Expl. No.
	$	FTE	$		
Total Salaries and Employee Benefits	230.7	4.00	213.3	17.4	
Total Other Expenditures	204.5		137.4	67.1	

Fish Culture

Stocking programs create self-sustaining fisheries, maintain and enhance fisheries where reproduction fails or winterkill occurs, and introduce species. Fish are produced at Whiteshell and Grand Rapids hatcheries, the latter co-funded by Manitoba Hydro. A seasonal walleye hatchery is operated at Swan Creek on Lake Manitoba.

A total of 54 million eggs were collected from about 700 walleye from Swan Creek near Lundar. Incubated at Swan Creek Hatchery, they produced 33.8 million fry, distributed as follows: 15.2 million back to Lake Manitoba, its tributaries and rearing ponds (as replacement and to support fisheries), 8.2 million in waters in Central Region, and 10.4 million in Western Region.

Under the Grand Rapids Hatchery agreement with Manitoba Hydro, Saskatchewan River is stocked at Grand Rapids to establish a self-sustaining walleye population. Walleye spawn camps, on Paimusk Creek near Molson Lake, Basket Creek at north end of Lake Manitoba, and Campbell Creek and Birch Bay drain near Lake St. Martin, produced 72 million eggs. From these eggs, Saskatchewan River at Grand Rapids received 2.2 million as unincubated, 'green', eggs, 1.4 million as incubated, 'eyed', eggs, and 7.6 million as newly hatched fry. Fry were also stocked in each source to 10% of eggs collected.

At Whiteshell Hatchery, 12.5 million eggs were collected from 108 walleye from Falcon Creek, producing 10.1 million fry (80% hatch). All were stocked in sport-fishing waters in the southeast, including 1.5 million replaced in Falcon Creek.

Crews searched for sturgeon spawning in Nelson, Weir, and Winnipeg Rivers. Low flows precluded effective netting on Weir River. On Winnipeg River, netting missed the short spawning period. At the confluence of Nelson and Landing Rivers, intensive netting through the spawning period produced one female with eggs remaining, from which 600 were collected. At Grand Rapids Hatchery, hatching success was 90%, producing 560 fry. There were 324 fingerlings stocked back to Nelson River and 54 were used in educational aquaria. Grand Rapids received eggs from three sturgeon from Cumberland House, Saskatchewan; eggs from two hatched, producing 42,900 fry. A total of 32,900 fry were stocked back to Saskatchewan River at Cumberland House and 10,000 were retained for rearing. There were 1,000 fingerlings stocked in Assiniboine River at Brandon and 7,500 were stocked in Saskatchewan River at The Pas. Approximately 300 were retained for marking experiments and educational aquaria.

Just over 21 million whitefish fry hatched at Grand Rapids from 62 million eggs collected from Lake St. Martin. Warm conditions during egg collection and incubation reduced the hatch rate. Twenty-one million fry were stocked in Cross Lake under the Manitoba Hydro agreement. A small number of fry were retained for experimental rearing to fingerling size. A total of 4,000 fingerlings were also stocked in Cross Lake.

Trout and char were produced at both hatcheries. Species raised at Grand Rapids included lake trout, splake, brook trout, and rainbow trout. Of 1,129,000 lake trout eggs from Clearwater Lake, 992,000 were fertilized upon collection, 140,000 replaced immediately on spawning reefs in Clearwater Lake, 100,000 stocked on reefs in Childs Lake, and 752,000 to Grand Rapids for incubation. The remaining 137,000 eggs went to Grand Rapids and fertilized with sperm from resident brook trout to produce hybrid splake. Lake trout and splake eggs were incubated at Grand Rapids. Species raised at Whiteshell included rainbow trout, brook trout, lake trout (transferred from Grand Rapids), brown trout, Arctic char, and an Arctic char *x* brook trout hybrid.

The section continued assisting volunteer organizations to enhance local stocks. Groups at Lonely Lake Drain, Lynchs Point, Warpath River, Winnipegosis, Duck Bay, and Overflowing River engaged in walleye spawn collection and/or incubation projects.

Distribution to sport fishing waters from hatcheries is presented in Table FI.3

Table FI.2
12-3(e)-2 Fish Culture

Expenditures by Sub-appropriation	Actual 1999/00	Estimate 1999/00		Variance Over/(Under)	Expl. No.
	$	FTE	$		
Total Salaries and Employee Benefits	684.3	16.19	676.9	7.4	
Total Other Expenditures	293.5		294.0	(0.5)	

Table FI.3

Distribution to Sport Fishing Waters from Fish Hatcheries, 1999/00

Species	**Fry & Eggs**	**Fish <15cm long**	**Fish >18cm long**
Arctic Char	0	0	85
Char X Brook Hybrid	0	12,000	0
Brook Trout	0	86,000	3,800
Brown Trout	0	166,000	1,700
Lake Trout	240,000	440,700	0
Rainbow Trout	0	227,000	38,763
Splake	0	36,000	0
Walleye	17,290,000	0	0

(Excludes stocking to waterbodies with both sport and commercial fishing, such as Lake Manitoba.)

Fisheries Habitat Management

The Section evaluates, maintains, restores and enhances habitat to achieve a net gain in healthy, productive stocks.

The Section reviews proposed developments which may affect surface waters, fish, and habitat, to recommend measures for mitigating or avoiding adverse impacts. A total of 51 proposals were reviewed under ***The Environment Act***. As usual, most dealt with wastewater treatment facilities (39%) and storage for agricultural chemicals, fertilizers and grain (20%). Water-related developments, such as rural water pipelines and irrigation withdrawals, were next most prevalent (14%). Review of Maple Leaf Meats hog processing plant at Brandon figured prominently. There were 92 other proposals reviewed, about two-thirds of which were such land issues as re-zoning, subdivisions and Crown land sales.

In cooperation with Fisheries and Oceans Canada, plans were prepared for compensating habitat losses from Gimli harbour development and Morris River diversion (flood protection for Rosenort). The Section assisted Fisheries and Oceans Canada to develop a *National Code for the Introduction and Transfer of Non-Native Fishes*. Assistance continued to Winnipeg's Combined Sewer Overflow and Ammonia studies.

Stream restoration projects continued in urban and rural areas, primarily to reduce sediment and nutrient loading, and to showcase rehabilitation techniques for protecting water quality and habitat.

Co-ordination and field assistance continued for Little Saskatchewan River Stakeholder Committee's habitat restoration projects. Fisheries Enhancement Initiative (FEI) funded construction of a pool and riffle fishway at Minnedosa Dam. Partners in this large project included Minnedosa Fish Enhancement Committee, Minnedosa Lake Rehabilitation Committee, Minnedosa Parks Board, and Little River Game and Fish Association. Friends of Rivers Lake also received FEI funding for four riparian restoration projects along Lake Wahtopanah and one site upstream on Little Saskatchewan River. These projects, done co-operatively with landowners, will reduce sediment and nutrient loading from cattle watering.

Rehabilitating urban streams continued proactively with Urban Stream Stewardship Organizing Committee. Activities included a riparian assessment workshop on Sturgeon and Omands Creek, a boat tour of upper Red River streambanks, and a survey of lower LaSalle River. Following recommendations made last year, 300 trees/shrubs were planted along Sturgeon Creek, and five riffles were installed in Bunns Creek. Revegetation continues on Omands and Bunns Creek and Seine River. Plans for two demonstration riffles in Seine River, and for repairing Seine River Diversion (Floodway) siphon, were finalized. Work on a denil fishway at Grant's Old Mill on Sturgeon Creek continues, with installation to occur next winter. A new stewardship group was formed along Churchill Drive reach of Red River.

A significant initiative continues to determine instream flow requirements to sustain viable populations. Instream flow describes amount, timing, and duration of water in streams and rivers, natural lakes, wetlands and riparian zones, recognizing natural season-to-season and year-to-year variability. An instream flow requirement maintains hydrological and physical conditions to sustain aquatic and riparian communities. A study was organized using 2-dimensional data from Lido Plage reach of Assiniboine River, synthesized with habitat suitability curves using the RIVER2D model, to develop a flow regime to sustain fish populations. Results will be extrapolated to the rest of the river. Critical habitat types in the river are documented at a range of lower flows to assist establishing a recommendation.

Table FI.4
12-3(e)-3 Fisheries Habitat Management

Expenditures by Sub-appropriation	Actual 1999/00 $	Estimate 1999/00 FTE	Estimate 1999/00 $	Variance Over/(Under)	Expl. No.
Total Salaries and Employee Benefits	350.8	7.00	344.9	5.9	
Total Other Expenditures	77.0		82.4	(5.4)	

Sport and Commercial Fishing Management

The Section develops, administers, and evaluates management programs and policies for sport, commercial and domestic use, commercial bait-fishing, and trout farming. It also manages the Northern Fishermen's Freight Assistance Program, distribution and reconciliation of commercial fishing licences, and fish production information.

Amendment of the *Fish Transportation Loadslip Regulation* clarified legal requirements for movement of angled, commercial and domestically-caught fish. The amendment authorizes movement of fish consistent with the *Fishing Licensing Regulation* and *Sparrow* decision.

Manitoba Fishery Regulations (Canada) were amended to allow posting Variation Orders on the Internet and/or in the annual ***Manitoba Anglers' Guide*** or *Commercial Harvest Schedule*. The Internet is an easy and cost-effective method of reaching the widest audience. ***Manitoba Anglers' Guide 2000***, *Recreational Fishing Variance* and *Commercial Fishing Season Variance* were posted on the Province's website.

In spring 1999, Conservation Closures were implemented on Turtle River and other Dauphin Lake tributaries, consequent to domestic harvests of up to 8,000 kgs of spawning walleye last year. In spring 2000, agreement was reached with Ebb and Flow First Nation to undertake a joint education approach to spring walleye harvest. Work with stakeholders continues on co-management to ensure conservation.

Director's Authorizations, which allow small retailers to sell fish for commercial fishermen, were processed for 57 fishermen consigning fish to seven retailers. Sales under *Authorizations* totalled 32,856 kgs (72,435 lbs), of which 70% was pickerel/sauger.

Lake Winnipegosis

The Department undertook to broaden representation on the Advisory Board to include the full range of fishing interests, including commercial fishing, Aboriginal, and tourism. The Board will recommend on key elements of a rehabilitation and management plan, on a five-year schedule. The plan will address the recommendations of an independent study which identified two approaches to walleye rehabilitation:

- *Unilateral/Drastic*, in which the Minister would impose such management actions as complete closure of commercial fishing, restrictions on spring-spawning harvests, cormorant control, walleye stocking, and habitat monitoring/enhancement, or,
- *Multilateral/Moderate*, in which a stakeholders management group would recommend what actions were required on each element. Key to success is representation of all fisheries interests on a new advisory/management board, including First Nations, conservation, commercial fishers and anglers.

Lake Winnipeg

An eight-year decline in pickerel/sauger catches (1989 to 1997) raised concerns of overfishing. The three-species quota (whitefish, pickerel and sauger) was being high-graded by fishers to produce more higher-value pickerel/sauger, which depleted these stocks as the three-species quota far exceeds sustainable yield of pickerel/sauger alone. Reduced mesh sizes, whitefish roe fisheries and illegal discarding may be reducing whitefish production. Prices for whitefish were increased recently by Freshwater Fisheries Marketing Corporation, which should encourage more effort and deliveries. Pickerel production increased significantly. The following actions continued to restore sustainability:

- Spring opening dates in South Basin based on 80% completion of spawning pickerel; one week later in the Channel and North Basin,
- Retirement quotas reduced to one per retired fisher; regulatory line changes were deferred until harvest reduction was addressed,
- To ensure fairness, the whitefish fleet's tolerance for pickerel/sauger was increased, from not more than 3,200 kgs of pickerel and sauger, to 4,550 kgs, for each 15,880 kg of quota.

Regulatory fishing lines are maintained at status quo, in view of mesh size reduction to 3 3/4" for pickerel pockets, and associated conservation concerns.

Lake Manitoba

Agreement with the Commercial Fishermen's Association reduced the 3" mesh perch fishery to six weeks, out of concern for pickerel/sauger stocks. This winter was the last of three (1997-98 to 1999-00) in the agreement which addressed sustainability of walleye/sauger stocks. Pickerel production increased over last year, while sauger and perch declined. However, complaints about low pickerel stocks have been received from tourism, angling, and commercial fishing interests. Numerous meetings discussed this issue, including a meeting with lodge owners, economic development interests and Manitoba Wildlife Federation. Consequently, all interests will be included in management decisions. A management agreement will be re-negotiated with Lake Manitoba Commercial Fishermen's Association, with involvement by other stakeholders, prior to making adjustments.

Other Programs

Fieldwork on Winnipeg River sturgeon, and index netting on Rocky and Cedar Lakes was completed. Population estimates for sturgeon in Winnipeg and Nelson Rivers were updated. Routine analyses of Rocky Lake and Cedar Lake data were completed. Last year's analysis of Lake Winnipeg trawled walleyes revealed a large overlap of body sizes in age 0+ and 1+ fish. All Lake Winnipeg index netting, trawling and commercial catch samples (except 1992) have been input. Work has commenced on cohort analysis. Analyses of Saskatchewan River commercial fisheries were completed and reporting is almost complete. Staff aged 23,439 scale samples. Numerous consultant requests for large data sets were answered.

There are 30 licensed fish-farmers and over 500 hobby farmers in private waters. Four major operators (two fingerling producers and two brokers/importers) distribute fingerlings to hobby farmers each spring. Four fee-for-fishing businesses, where customers pay to fish in privately-stocked ponds or Crown waters, provide easily access to fishing from shore, ideal for small children and individuals otherwise unable to angle. In 1998, fish farmers reported selling 397,170 fingerlings, of which 365,490 were rainbow trout, 3,480 arctic char, 10,900 brook trout, and 17,300 other fish species. Grow-out operations sold 14,475 kgs of rainbow trout and 12,796 kgs of arctic char.

A total of 75 commercial baitfish fishers were licensed, producing about 79,455 kgs of frozen baitfish. Forty-three live-bait fishers produced about 115,070 dozen baitfish. Gross sales were about $616,450.

There were 29 *Leech Licences* issued, with about 1,700 kgs produced, valued at about $62,840. There were 53 *Live Bait Dealer Licenses*, allowing retail sale of live baitfish and leeches, were issued.

The Urban Angling Partnership (UAP), comprising Manitoba, Winnipeg, Manitoba Wildlife Federation, Fish Futures, Mid-Canada Marine Dealers Association, and Don Lamont of *The Complete Angler*, continues to promote angling in the city, especially the excellent opportunities on Red and Assiniboine Rivers. The UAP is involved in four activities:

- *Learn to Fish Clinics*, offered through Winnipeg Parks and Recreation Leisure Program, aim at families, new anglers, and those who have not fished for some time. Tackle dealers provide bait, tackle, and instruction, while manufacturers provide equipment. Fish and game clubs provide volunteer assistance,
- *Winnipeg Fish Festival*: a one-day event at The Forks, showcases the recreational angling community and promotes angling in the city as an affordable leisure activity. An estimated 5,000+ visitors attended fish filleting demonstrations, kids fishing educational stations, fishing displays, arts and crafts, on-stage seminars, and casting competitions.
- *Fish Winnipeg Media/Corporate Challenge*: a one-day event exposing media and corporate communities to this world-class recreational fishery. The event introduces Winnipeggers to this fishery, showcases the angling community, promotes angling as a healthy, self-esteem building outdoor leisure activity for youth, and raises funds to benefit Winnipeg youth/youth-at-risk angling programs. Over $9,000 was raised that was targeted at inner city youth-at-risk, and approximately 400 children enjoyed an angling experience. Plans for 2000 include expansion to include weekend family fishing and kids fishing camps.
- Angling access development: improving access enhances popularity of urban angling. Efforts of UAP members developed fishing platforms to complement existing public docks, and increased riverbank access along Red River. In addition, designs were completed for park enhancement along Assiniboine River. Work will continue on development and enhancement of access.

The 2000 ***Anglers' Guide***, published under contract with Fish Futures, summarizes angling regulations, highlights new and proposed regulations, and includes management and other information. Anglers and user groups continued an important role in developing regulations; attention is directed towards simplification without diminishing conservation.

Promotion of angling included distribution of materials at Mid-Canada Boat Show, mall events, fishing clubs, festivals, and schools. Urban fishing and angling regulations were emphasized. Fish-measuring rulers were produced for distribution throughout the province.

Resident and non-resident angling license sales continued to increase slightly.

Table FI.5
12-3(e)-4 Sport and Commercial Fishing Management

Expenditures by Sub-appropriation	Actual 1999/00	Estimate 1999/00		Variance Over/(Under)	Expl. No.
	$	FTE	$		
Total Salaries and Employee Benefits	504.1	10.00	504.5	(0.4)	
Total Other Expenditures	107.8		104.3	3.5	

Table Fl.6

Angling Licence Sales and Revenue, 1989/90 TO 1998/99

				Resident of Manitoba Senior's Conservation			Total Resident of Manitoba	
Year				Number	Fee $	Revenue $	Number	Revenue $
1997/98				7,878	5.61	36,615.58	7,878	36,615.58
1998/99				8,700	5.61	40,315.00	8,700	40,315.00

	Resident of Canada Regular			Resident of Canada Conservation			Total Resident of Canada	
Year	Number	Fee $	Revenue $	Number	Fee $	Revenue $	Number	Revenue $
1989/90	79,972	10.00	760,346.50	68,076	5.00	306,653.00	148,048	1,066,999.50
1990/91	74,321	10.00	706,757.00	72,030	5.00	324,521.50	146,351	1,031,278.50
1991/92	69,250	10.00	658,506.00	76,790	5.00	345,969.50	146,040	1,004,475.50
1992/93	64,496	10.00	613,343.50	77,358	5.00	348,538.50	141,854	961,882.00
1993/94	58,833	12.50	706,624.50	73,227	7.50	512,963.00	132,060	1,219,587.50
1994/95	57,783	12.50	694,044.00	77,716	7.50	544,498.00	135,499	1,238,542.00
1995/96	55,235	12.50	663,355.00	76,844	7.50	538,289.00	132,079	1,201,644.00
1996/97	52,158	12.50	626,742.00	75,081	7.50	526,422.50	127,239	1,153,164.50
1997/98	51,859	14.02	676,760.18	73,603	8.41	546,849.23	125,462	1,223,609.41
1998/99	57,381	14.02	748,238.62	84,000	8.41	623,386.00	141,381	1,371,624.62

	Non-Resident of Canada Regular			Non-Resident of Canada Conservation			Total Non-Resident of Canada	
Year	Number	Fee $	Revenue $	Number	Fee $	Revenue $	Number	Revenue $
1989/90	16,647	30.00	491,187.00	16,175	15.00	234,652.00	32,822	725,839.00
1990/91	11,483	30.00	338,827.50	18,170	15.00	263,626.50	29,653	602,454.00
1991/92	9,667	30.00	285,279.50	18,381	15.00	266,725.50	28,048	552,005.00
1992/93	9,316	30.00	274,922.50	19,868	15.00	288,316.00	29,184	563,238.50
1993/94	8,770	32.50	280,744.00	20,742	17.50	352,905.50	29,512	633,649.50
1994/95	8,299	32.50	265,668.50	21,906	17.50	372,702.50	30,205	638,371.00
1995/96	7,821	32.50	250,369.50	22,448	17.50	381,856.00	30,269	632,225.50
1996/97	6,840	32.50	218,945.50	21,757	17.50	370,199.50	28,597	589,145.00
1997/98	6,712	37.38	244,557.56	23,406	20.56	458,473.36	30,118	703,030.92
1998/99	7,149	37.38	260,237.62	26,223	20.56	513,312.88	33,372	773,550.50

	Total Regular Licences			Total Conservation Licences			Total Licences	
Year	Number		Revenue $	Number		Revenue $	Number	Revenue $
1989/90	96,619		1,251,533.50	84,251		541,305.00	180,870	1,792,838.50
1990/91	85,804		1,045,584.50	90,200		588,148.00	176,004	1,633,732.50
1991/92	78,917		943,785.50	95,171		612,695.00	174,088	1,556,480.50
1992/93	73,812		888,266.00	97,226		636,854.50	171,038	1,525,120.50
1993/94	67,603		987,368.50	93,969		865,868.50	161,572	1,853,237.00
1994/95	66,082		959,712.50	99,622		917,200.50	165,704	1,876,913.00
1995/96	63,056		913,724.50	99,292		920,145.00	162,348	1,833,869.50
1996/97	58,998		845,687.50	96,838		896,622.00	155,836	1,742,309.50
1997/98	58,571		921,317.74	104,887		1,041,938.17	163,458	1,963,255.91
1998/99	64,530		1,008,476.24	118,923		1,177,013.88	183,453	2,185,490.12

Note:

1. *Revenue figures are net (less vendor's commission).*
2. *Manitoba Fisheries Enhancement Stamp initiated in 1993-94.*
3. *Resident of Manitoba Senior's Conservation Licences were introduced in 1997-98.*
4. *Starting with the 1999/2000 season – angling licences will be valid from May 1 – April 30. Licence sale statistics for the 1999/2000 Annual Report will be based the most recent complete season i.e. the 1999/2000 Annual Report will contain information on the 1998/99 season.*
5. *1998/99 figures have been adjusted to reflect final sales.*

Table FI.7

Fishermen Employed in Manitoba Commercial Fishery, 1998-1999

	Northern Lakes	Lake Winnipeg	Lake Manitoba	Lake Winnipegosis	Other Lakes	Overall
Summer						
Licence Holders	454	768	65	43	9	1295
Hired Men or Helpers	159	154	0	52	12	374
TOTAL	613	922	65	95	21	1669
Winter						
Licence Holders	85	129	508	166	189	1060
Hired Men or Helpers	30	24	368	111	108	634
TOTAL	115	153	876	277	297	1694
Annual						
Licence Holders	475	786	520	172	191	2079
Hired Men or Helpers	157	152	368	135	116	911
TOTAL	632	938	888	307	307	2990

Note: Those who fish in more than one area or season, or who fish both as hired men and *Licence* holders, are counted only once in the appropriate Total column. Where hired-man-and-*Licence*-holder duplication occurs, the individual is counted as a *Licence* holder. Therefore, this table does not total horizontally or vertically.

Table FI.8

Commercial Fishing Production (Round kg), Total Value and Employment (Licensed Fishermen Plus Hired Men) 1989-90 to 1998-99

	Northern Lakes		Lake Winnipeg		Lake Manitoba		
Year	Weight (kg)	$ Value	Weight (kg)	$ Value	Weight (kg)	$ Value	
1989-90	2,652,650	3,003,300	5,917,250	9,636,500	1,776,350	2,623,700	
1990-91	2,367,950	2,689,600	5,066,850	8,018,550	1,457,300	2,603,200	
1991-92	3,181,650	4,473,000	5,857,600	12,092,450	3,023,550	4,920,800	
1992-93	2,625,750	4,097,600	4,644,650	11,291,300	1,099,950	2,988,500	
1993-94	1,867,550	2,369,100	4,217,700	7,954,350	710,350	1,580,400	
1994-95	2,572,500	3,887,600	4,655,500	11,174,800	821,000	2,747,250	
1995-96	3,081,050	5,033,450	4,836,400	12,177,900	2,027,500	3,462,250	
1996-97	3,339,650	4,290,500	4,312,600	8,864,050	1,344,450	1,840,450	
1997-98	2,621,550	3,565,750	3,991,600	8,340,050	1,518,000	2,207,800	
1998-99	2,761,800	4,350,500	4,825,600	14,119,350	1,734,450	2,284,800	

	Lake Winnipegosis		Other Lakes		Manitoba Total		
Year	Weight (kg)	$ Value	Weight (kg)	$ Value	Weight (kg)	$ Value	Total Employment
1989-90	1,727,450	1,031,900	1,438,050	1,839,450	13,511,750	18,134,850	3,689
1990-91	950,300	641,650	843,800	1,048,500	10,686,200	15,001,500	3,457
1991-92	2,287,950	1,718,700	1,275,250	1,568,000	15,626,000	24,772,950	3,490
1992-93	879,700	696,400	813,750	1,405,600	10,063,800	20,479,400	3,354
1993-94	1,074,350	477,000	1,034,150	1,586,050	8,904,100	13,966,900	3,173
1994-95	775,350	436,400	989,000	1,911,550	9,813,350	20,157,600	3,125
1995-96	1,385,000	659,750	1,195,300	1,555,900	12,525,250	22,889,250	3,345
1996-97	1,635,650	682,500	1,190,800	1,089,350	11,823,150	16,766,850	3,325
1997-98	1,465,050	842,800	915,700	725,050	10,511,900	15,681,450	3,237
1998-99	2,106,550	1,892,650	775,000	1,273,000	12,203,400	23,920,300	2,990

NOTE: Total value includes both Initial Value and Final Payment.

Table FI.9

Commercial Fishing Production (Round Weights kg) by Area and Total Value By Species, 1998-1999

Species	Northern Lakes		Lake Winnipeg		Lake Manitoba		Lake Winnipegosis	
	Summer	Winter	Summer	Winter	Summer	Winter	Summer	Winter
Bass		Trace[2]	20,750	5,100				
Carp	50	50	10,000	1,650	124,400	138,600	35,400	48,700
Catfish			250	250				
Goldeye	5,300	550	7,950	1,200			50	350
Maria	6,100	5,850	32,450	44,950		6,400		4,250
Mullet	497,400	94,900	280,100	18,700	209,800	719,600	454,750	822,850
Perch	850	1,250	25,300	5,150		177,400	100	27,950
Pickerel	518,250	34,950				175,950	144,550	59,250
Pike	609,600	180,750	1,836,000	200,200			49,100	437,550
Sauger	3,550	750	203,850	13,000		95,550	Trace[2]	150
Trout	44,550	100	806,150	224,700		82,400		
Tullibee	81,550	15,750						
Whitefish	571,600	88,100	700	250		Trace[2]	6,950	14,600
			980,500	106,450		4,350		
Total	2,338,800	423,000	4,204,000	621,600	334,200	1,400,250	690,900	1,415,650

	Other Lakes[1]		Total Production			Total Value $[3]		
Species	Summer	Winter	Summer	Winter	Total	Summer	Winter	Total
Bass			20,750	5,100	25,850	28,450	6,300	34,750
Carp	300	37,900	170,150	226,900	397,050	49,900	68,000	117,900
Catfish			250	250	500	250	250	500
Goldeye		750	13,300	2,850	16,150	31,450	7,550	39,000
Maria		2,450	38,550	63,900	102,450	14,350	28,750	43,100
Mullet	1,750	189,300	1,443,800	1,845,350	3,289,150	385,850	533,550	919,400
Perch		8,400	26,250	220,150	246,400	121,050	1,022,550	1,143,600
Pickerel	1,800	248,650	2,500,600	719,000	3,219,600	11,181,650	2,872,100	14,053,750
Pike	4,150	203,350	866,700	930,200	1,796,900	638,200	763,150	1,401,350
Sauger		250	809,700	308,250	1,117,950	2,785,950	1,072,200	3,858,150
Trout			44,550	100	44,650	38,300	50	38,350
Tullibee		3,700	82,250	19,700	101,950	38,050	13,350	51,400
Whitefish	36,650	35,600	1,595,700	249,100	1,844,800	1,812,950	406,100	2,219,050
Total	44,650	730,350	7,612,550	4,590,850	12,203,400	17,126,400	6,793,900	23,920,300

1. Includes Chitek Lake, Cross Bay, Dauphin Lake, Inland Lake, Little Limestone Lake, Mire-Proulx Lakes, Pelican Lake, Red Deer Lake, Reedy Lake, Sisib-Pickerel Lakes, Lake St. Martin, Strong Lake, Swan Lake, Waterhen Lake, William Lake.
2. Small amount.
3. Total $ value includes both initial value and final payment.

NOTE: Statistics for 1999-00 were not available in time to be included; they will appear in the ***Annual Report*** for 2000-01.

Northern Fishermen's Freight Assistance

The Northern Fishermen's Freight Assistance (NFFA) program assists marginal commercial operations by partial subsidization of transporting certain species from lakeside to Winnipeg. Fishers pay the first 20¢/kg of freight, the Province pays the next 35¢/kg, and fishers pay any costs over 55¢/kg. Eligible species are whitefish, pike, lake trout, perch, goldeye, and tullibee. Subsidy payments to fishers are issued weekly by Freshwater Fish Marketing Corporation (FFMC) on behalf of Manitoba. Fisheries allowed to opt out of FFMC are paid by Fisheries Branch at season end.

To ensure expenditure does not exceed the $250,000 cap set in 1991, fishers receive an initial payment, usually 70% of their estimated eligibility. They receive final payment at fishing-year end. While a full 30% final payment may not be possible when production is high, a final payment higher than 30% may occur in low-production years. NFFA paid about $151,000 to 442 fishers for summer season. Payments to about 100 fishers for winter season will likely be about $35,000.

Table FI.10
12-3(e)-5 Northern Fishermen's Freight Assistance

Expenditures by Sub-appropriation	Actual 1999/00 $	FTE	Estimate 1999/00 $	Variance Over/(Under)	Expl. No.
Total Other Expenditures	250.0		250.0	0.0	

Fisheries Enhancement Initiative

The Initiative funds projects that protect or improve stocks or habitat. A total of 14 projects were for stream enhancement, involving one or more of: riffle and pool placement, bank rehabilitation (fencing, resloping, rearmouring, revegetation, and offshore cattle watering), and fishways. Nearly half of enhancement projects were for constructing two fishways; a riffle and pool fishway at Minnedosa dam, and a denil fish ladder at Grant's Old Mill on Sturgeon Creek, Winnipeg. Other projects were in education (2), population management (2), and lake enhancement (2). Half of approved projects were from Western Region (10), followed by Central (2), Eastern (2) and Northeastern Regions (1). Five projects were in Winnipeg.

Table FI.11
12-3(e)-6 Fisheries Enhancement Initiative

Expenditures by Sub-appropriation	Actual 1999/00 $	FTE	Estimate 1999/00 $	Variance Over/(Under)	Expl. No.
Other Expenditures	25.3		25.0	0.3	
- Grants/Transfer Payments	323.8		325.0	(1.2)	
Total Other Expenditures	349.1		350.0	(0.9)	

Chapter 10
Wildlife Branch

The Branch manages wildlife resources to conserve species and ecosystems, based on preservation of biological diversity and principles of sustainable development. The Branch protects and enhances habitat on Crown and private lands. Resources are allocated to maximize long-term social, economic, and environmental benefits. The Branch co-operates with a wide range of clients and client groups to promote commitment to conservation and to realize optimum benefits from interaction with wildlife. The Branch represents wildlife interests in departmental, provincial, national, and international initiatives for migratory wildlife, game and fur species, problem wildlife, protected spaces, conservation, sustainable development, biodiversity, federal-provincial harmonization, and species at risk.

Administration

The section provides legislation, policy, and procedure to direct and co-ordinate programs and ensure effective performance. The section co-ordinates spending estimates, ensuring expenditures are within budget, and provides comprehensive payroll, financial, operational support, and administration of wildlife permits required under federal and provincial statutes.

In conjunction with Game and Fur Section, the section participated in Conservation Corps Program (job-training initiative with Manitoba Family Services). Under this program, an individual provided support to fur statistics project and Branch administration while gaining valuable work experience.

Program elements and staffing were reviewed and adjusted to advance priority program areas. Administration was reorganized with consolidation at 200 Saulteaux. A Legislation/Permitting Unit was established to develop a new Wildlife Act. In Habitat Management Section, a Wildlife and Land Planning Unit was created to develop overall goals and frameworks into which program components will fit, and lands planning and management, including Crown lands and WMA's. Wetlands and Waterfowl Management Unit was expanded by addition of an Avian Ecologist, responsible for policy and program planning for nongame birds. An Agro Wildlife Manager was hired to manage all aspects of Habitat program in the agricultural area, with particular focus on prairie and parkland landscapes, including riparian zones.

The Branch initiated public consultation toward a Sustainable Development Strategy and revisions to ***The Wildlife Act***, scheduled for completion by 2002.

The Wildlife Enhancement Initiative continued to support wildlife and habitat management projects. The Initiative derives funds from a special impost on hunting licences. Hunter-funded projects included: monitoring (aerial surveys of big game populations), problem-wildlife information system, problem black bear dispersal, traditional uses of wildlife, Wildlife Management Area maintenance, support to bioinventory of part of Hudson Bay coastal area, woodland caribou telemetry, Conservation Data website expansion, Wildlife Branch Webpage, and Hunter Information Service.

Grants were made to: Churchill Northern Studies Centre (research on wildlife and resource management); Manitoba Trappers Association (greater trapper involvement in fur management); Fur Institute of Canada (humane trap development and public information); Manitoba Habitat Heritage Corporation (North American Waterfowl Management Plan and Critical Wildlife Habitat Program); and Ducks Unlimited Canada (to assist operation and maintenance of Oak Hammock Marsh Interpretative Centre).

The Branch chaired the Crown Land Classification Committee, an interdepartmental approach to landuse rationalization and adjudication of Crown land sales. The Director supported operation of the Oak Hammock Marsh Interpretative Centre as a member of Board of Directors.

The Director represents provincial interests on various local, national and international wildlife initiatives: board member of Wildlife Habitat Canada, International Association of Fish and Wildlife Agencies, Western Wildlife Directors, Canadian Wildlife Directors, Arctic Goose Joint Venture, Circumpolar Polar Bear Management Committee, Canadian Co-operative Health Centre, Canadian Biodiversity Committee, Mississippi Flyway Council, Manitoba Habitat Heritage Corporation, and Prairie Habitat Joint Venture.

Wildlife Branch Website

A Webpage was developed to provide an overview of who we are, what we do, and how to reach us: http://www.gov.mb.ca/natres/wildlife/index.html. Information available on-line includes:

- Answers to frequently asked questions,
- Legislation that governs wildlife management,
- When and how to apply for a wildlife permit or apply for a permit on-line,
- Annual hunting and the trapping guides,
- How plants, animals, and wildlife habitats are managed for their conservation,
- Species at risk,
- Problem wildlife and wildlife diseases,
- Key places to view wildlife,
- How to get involved in monitoring birds, amphibians, or dragonflies, and,
- Upcoming wildlife courses or public meetings.

Legislation

Three Ministerial Regulations were amended to change hunting seasons; a fourth was amended to change trapping seasons. An Order-in-Council Regulation on fees was amended to introduce a Second Caribou Licence and a Deer and Game Bird Licence (Youth). A Bill to amend ***The Wildlife Act*** to confirm Ministerial authority to make Regulations prohibiting hunting of native and exotic wildlife in captivity was prepared and received First Reading. Consultation with Canada respecting the proposed **Species at Risk Act** continued.

Wildlife Permits

The Branch is responsible for permits required under ***The Wildlife Act*** and ***The Endangered Species Act***. Subject to federal guidelines, CITES (*Convention on International Trade in Endangered Species of Wild Flora and Fauna*) *Export Permits* are also issued under the ***Wild Animal and Plant Protection and Regulation of International and Interprovincial Trade Act***. Revision to reflect computer system conversion continued. The Black Bear Trophy Permit, a CITES export permit, was discontinued by Canada for American hunters taking an unprocessed trophy as accompanying baggage.

Wildlife Permits Issued in 1999

Provincial Permits:	
Permit to Export Wild Animal	567
Possess Dead Wild Animal (personal use)	154
Possess Dead Wild Animal (educational)	8
Applications Denied (Dead Wild Animal)	15
Possess Live Wild Animal	12

Wildlife Permits Issued in 1999

Disabled Hunter Permits (permanent)	139
Disabled Hunter Permits (temporary)	37
Applications Denied (Disabled Hunter)	3
Dog Trainer's License (non-resident)	3
Dog Training Club License	2
Field Trial Permits	1
Permit to Serve Wild Meat	3
Permit to Capture Wild Animal	10
Permit to Deal in Animal Parts	9
Permit to Import Wild Animal	21
Permit to Import Exotic Animal	2
Permit to Operate Vehicle Off Designated Route	1
Permit to Kill Wild Animal	1
Permit to Operate Power Boat in Marsh	3
Wildlife Scientific Permits	17
Species At Risk Permits	4
Total (Provincial Permits):	**1012**
Federal Permits:	
CITES Export Permits	1211
CITES (Black Bear Trophy Permits)	790
Total (Federal Permits):	**2001**

Table WI.1

12-3(f)-1 Administration

Expenditures by Sub-appropriation	Actual 1999/00 $	Estimate 1999/00 FTE	Estimate 1999/00 $	Variance Over/(Under)	Expl. No.
Total Salaries and Employee Benefits	349.7	8.00	374.4	(24.7)	
Other Expenditures	368.4		291.3	77.1	
- Grants/Transfer Payments	207.0		207.0	0.0	
Total Other Expenditures	575.4		498.3	77.01	

Big Game and Fur Management

Hunting

Standardized opening dates and season lengths, earlier announcement of seasons, and simplified regulations improved service to the public. A special Youth Hunting Licence Package with reduced fee was implemented for deer and upland gamebirds. Developed to encourage young hunters (aged 12-17), 3,000 Youth Hunting Licence Packages were purchased.

To offset impact of excessive snow geese numbers on fragile arctic nesting grounds, a spring season in the north and early fall seasons in the south were introduced to increase harvest.

Hunting remains a popular heritage activity, particularly for big-game species. Total resident and non-resident big-game licences sales increased to 66,759 (from 59,244 last year) including 6,429 applications (11,458 applicants) for the big game draw. Hunters harvested an estimated 28,500 deer, 1,200 moose, 800 elk, 1,700 black bear and 200 barren-ground caribou. A total of 14,310 residents and 7,164 non-residents were licensed to hunt gamebirds.

Wildlife Enhancement Initiative continued to support wildlife and habitat management projects. The Initiative is funded by an impost on hunting licences.

Hunting Guide (160,000 copies) and ***Designated Route Maps*** (3,000) were produced and distributed.

White-tailed Deer

Mild winter conditions again resulted in average-to-low winter mortality in most ranges. Densities remained moderate across much of the south. Eastern Region herd has begun to recover from high winter mortality in 1995-96 and 1996-97, benefiting from mild winters and buck-only bag limit. High numbers of deer inside Perimeter Highway and in Red River valley, where hunting is limited or prohibited, continue to significantly damage speciality crops and landscape plantings.

Rifle season license sales to residents were 31,488 (33,864 in 1998-99). Resident bowhunting license sales continued as previously at 2,919 (2,863 in 1998-99), as did muzzleloader sales 6,312 (6,541 in 1998-99).

Non-resident/non-Canadian rifle, muzzleloader, and archery license sales were slightly above 1998-99 at 1,160, 118, and 229, respectively.

Harvest from all resident and non-resident seasons was estimated at 28,500.

Black Bear

Populations are stable or growing, indicating that current hunting intensity (3,000 hunters), is sustainable. Bears conflicted with human activities on numerous occasions, and some control measures were necessary.

Approximately 1,300 residents hunted bear, below 1998-99 (1,500), and considerably below long-term average. Non-resident harvest is managed by the outfitter license quota system. Non-resident hunters increased slightly to 1,700, due to more in more remote areas. Quality experiences and a reputation for big bears with a range of colour phases attract non-residents. Although trapping is permitted in Registered Trapline Areas, bear constitutes a very minor part of fur harvest.

An estimated 1,700 bears were taken by hunters.

Direct measurement of bear populations is difficult. Consequently, indirect methods are used to detect changes in bear densities, such as field observations by staff, hunters and outfitters, hunter success rates, and sex-ratio and age distribution of harvest. A computer model, using hunter harvest data and biological samples from hunters and outfitters, was used to evaluate harvest levels to ensure sustainability. Female reproductive tracts show litter size, and premolar teeth provide age, together indicating age at onset, and frequency, of reproduction.

Concern about orphaned cubs prompted a complete assessment of spring hunting. Preliminary findings indicate a very low incidence of cub orphaning due to hunting.

Moose

Populations and calf crops continue to be good-to-excellent in Turtle Mountain, Duck Mountain, Riding Mountain, parts of Central Region, and much of the north. Densities in GHA 21 responded to habitat rejuvenation following the large 1989 fire and have stabilized at high levels. In north Interlake, Northwest Region, and parts of southeast, numbers remain below optimum levels despite excellent habitat and limited licenced hunting. Discussion of long-term harvest strategies with First Nations continued.

A total of 5,550 resident and 120 non-resident moose licences were sold, similar to 1998-99, with estimated harvest of 1,200.

Elk

Province-wide, numbers have decreased slightly. Duck Mountain and Porcupine Hills herds have declined due to increased hunting opportunity and the elk capture program. A reduction in numbers, particularly in Swan Valley area, was required to address concerns about excessive damage to farm produce. It is anticipated that slight reduction in hunting pressure over the next three years will allow recovery in Duck Mountain population to meet goals. Spruce Woods population is stable at about 400. South Interlake herd exceeded its population goal of 1,000; increased hunter opportunity has been approved. Riding Mountain area population has remained fairly constant between 4,000 and 5,000.

An estimated 800 elk were taken by about 4,300 hunters during the rifle, archery, and landowner seasons.

A Management Strategy is being developed for each herd. Interlake Elk Management Strategy has been completed for approval by Manitoba Conservation and Manitoba Agriculture and Food.

Caribou - Barren-ground and Coastal

Populations of barren-ground caribou are stable or increasing, while coastal herds (Cape Churchill and Penn Island ranges) are stable. An estimated 200 were taken under about 600 resident and 175 non-resident licenses. The non-resident season, in GHA 1, benefits communities and lodges in the north, where employment opportunities are limited. Guiding, outfitting, and accommodations are primary income-generating services with spin-offs to other sectors.

Disease in Wildlife

There is some evidence of low-level presence of bovine tuberculosis in Riding Mountain area, by detection in cattle and elk. This has implications for agriculture, wildlife management, and human health. All agencies with jurisdiction agree to ongoing cooperation in addressing the situation.

A five-year program to monitor tuberculosis in wild ungulates in Riding Mountain area completed its third year. Only 3 elk have been found infected with Bovine TB, out of over 1,000 samples examined. These infections are considered to be related to TB infections in cattle. Manitoba Conservation, Manitoba Agriculture and Food, Canadian Food Inspection Agency, and Parks Canada are main program partners.

Non-resident License Allocation Programs

Non-resident deer, moose, bear, caribou, and gamebird hunters spent over $1.5 million for licences and generated over $10 million in economic activity. Allocation of non-resident big-game licences through lodges and outfitters allows adjustment of harvest to maintain sustainability and meet needs of residents. The program is regularly reviewed to ensure that objectives are met. Manitoba Lodges and Outfitters Association, Manitoba Wildlife Federation, and individual outfitters were consulted to identify and address concerns. Major goals are to foster stewardship of wildlife resources and improve business environment.

Big Game Monitoring Program

Understanding population dynamics is essential to management. Population changes are detected by comparing data collected similarly over time. Most commonly used methods are:

- Winter aerial inventories to estimate abundance, sex and age composition, recruitment and distribution,
- Mail questionnaires to estimate harvest levels, and,
- Biological specimen collection to assess age and reproductive status.

Aerial Surveys

Guidelines priorize proposals and co-ordinate staff roles and responsibilities. Part of revenue from big game licences was added to the survey budget. Snow conditions were sub-optimal, resulting in fewer priority surveys being flown and contingency surveys flown instead. Surveys flown included:

- GHA 3, moose. Aerial survey to determine distribution and population of moose in York Factory Resource Management Area (a block along 60 km of Hudson Bay coastline and 75 km of Hayes River) and seven inland plots (averaging 10 km²). The first point estimate for this Resource Area is 109 moose. None were found on inland plots. The York Factory Resource Management Board financed this survey.
- GHA 7A, moose. 6972 km² was totally stratified and 51 25 km² sample units were intensely surveyed, representing 18% of the area. A first point estimate of 665 moose (.09 animals/km²) was derived.
- Interlake elk. A transect survey was flown at one-kilometer intervals throughout South Interlake Elk Management Unit, representing 37% of GHAs 21, 25 and 25A. A total of 974 elk were observed, extrapolating to 1,120 (.19 animals/km²).
- Hecla Island moose. 160 km² was systematically searched, resulting in a count of 25 (0.16 animals/km²). This count is 58% lower than 1996 (59) and a 84% decrease from the high of 152 animals (1986). This survey was financed by Parks and Natural Areas Branch.

- GHA 17A, moose. The 3223 km² area was totally stratified and 20 31 km² sample units, representing 19% of the area, were intensely searched. A first point estimate of 571 moose (0.18 animals/km²) was determined.
- GHA 26, moose. The 6,862 km² area was stratified and 44 31km² sample units, comprising 19% of the area, were intensely surveyed, producing a point estimate of 2,350 moose (0.34/km²). These results suggest the population has grown since 1992 (1,788).

Hunter Questionnaires

Over 6,000 questionnaires were mailed to all resident hunters in Draw seasons, and 20,000 questionnaires were sent to a sample of residents in general license seasons. About half of the hunters replied, from which resident harvest in 1998 was estimated:

Season	Resident Licenses Sold	Estimated Resident Harvest
Deer rifle	32,034	20,738
Deer archery	2,933	346
Deer muzzleloading	6,006	3,221
Deer (antlerless) second	7,047	4,715
Moose rifle	3,509	573
Moose (conservation)	131	28
Moose (draw)	1,616	329
Moose archery	210	23
Moose (draw) archery	80	11
Elk (draw)	2,636	564
Elk (draw) archery	985	97
Elk (draw) landowner	796	305
Black Bear	1,368	442

Biological Specimen Collection

The section collects biological samples from hunters, who provide teeth and reproductive tracts from black bear. Crests are offered in appreciation for submission of teeth, and belt buckles for female reproductive tracts. These rewards contribute to a submission rate of 60% of (estimated) bear harvest. Analysis of 1998 specimens was:

- 321 female and 626 male pre-molars were aged: average age for females was 7.34 years (oldest aged in Manitoba was 30.3 years) and for males, 5.25 (oldest 29.5 years).
- 247 reproductive tracts were examined, identifying 2.56 cubs as the average litter for mature females (6+ years) and 2.0 for 2-5 year olds.

Problem and Captive Wildlife

The unit develops policies, legislation, and programs to address wildlife/human conflicts and use of wild animals taken alive.

Beaver taken under the Problem Beaver Control Program increased to 7,171 (from 4,030), largely due to decline in commercial trapping. There was $107,565 spent to remove beaver from municipal and private land and certain northern community areas. Problems were most frequent in municipalities around Duck Mountain and Riding Mountain National Park. Review by a committee of stakeholders determined that the Program is not providing desired results. New options are being developed.

The Wildlife Crop Damage Compensation Program, administered by Manitoba Crop Insurance Corporation (MCIC), reimburses producers for bear damage to beehives and produce, for deer, elk, and bear damage to crops and property, and for livestock loss or injuries from predators such as wolves. Compensation for big-game damage was below average, due to early crop harvest and favourable winter conditions; $321,000 was paid for deer, elk and bear damage to standing crops and stored hay. Compensation for waterfowl damage increased to $568,000, due to harvest delayed by inclement conditions in the west. Damage to honey and leafcutter bee operations totalled $53,000 and $10,000 respectively.

This was the second year for Predator/Livestock Damage Compensation Program. A total of 474 predator claims were processed by MCIC; compensation paid will be about $148,000. Claims investigations and adjustment services will be transferred to MCIC adjusters in April 2000.

Requests to deploy pesticides for problem wolf control decreased by 10 over last year. Of 24 requests approved for deployment, 15 were in Eastern Region, six in Northwest Region, one in Western Region, and two in Central Region. In February 2000, deployment of pesticides was suspended until federal pesticide permits and gray wolf control policy is reviewed.

Capture of elk and Elk Seedstock Program have been terminated. In the capture program's four years, staff, First Nations Elk and Bison Council, and landowner contractors captured 730 elk, 438 of which were captured in 1999. Some elk captured in 1999 tested positive to tuberculosis tests and more testing will be conducted. Consequently, no elk will be dispersed to producers until fall 2000, to ensure they are disease-free.

Under the Regulation permitting falconry, three individuals were granted permits to capture wild raptors. Two red-tailed hawks, one sharp-shinned hawk, and one northern goshawk were captured. Another individual was permitted to import a gyrfalcon/saker falcon cross. Falconers may hunt game birds and waterfowl, having obtained a hunting license.

Wild boar at-large control efforts continued due to concerns for human safety, habitat destruction, and damage to property and crops. There are about 325 wild boar at large in five principal areas: R.M. of Brokenhead, Interlake, Assiniboine River Valley west of Brandon, Shell River Valley, and Duck Bay. Despite poor winter trapping conditions, 13 wild boar were removed from R.M. of Brokenhead. As authorized by ***The Wildlife Act***, R.M. of Grahamdale has been declared a wild boar control area whereby any resident can legally shoot wild boar at large, under certain conditions. Declaration of the R.M. of Elton is pending. The Branch continues to receive and assess reports of boar at large.

In fall, Canada geese staging inside Perimeter Highway numbered over 125,000 and many calls expressed concern about property damage and risk to human health from goose droppings. Winnipeg Airport Authority is concerned about threat to air traffic. The Branch met with stakeholders to discuss management, such as public education, habitat modification, enhanced hunting opportunity, scaring devices and repellents. Consequently, an urban goose working group formed to investigate and draft a management plan.

The Minister of Conservation introduced legislation, Bill 5, **The Wildlife Amendment Act**, to enable regulation or prohibition of commercial shooting of confined animals. The Bill raised concerns from agriculture producers, game farmers, the pet industry, and Manitoba Bison Producers, worried the Bill would interfere with their operations. The Department will conduct extensive public consultation prior to development of Regulations under the Act.

Furbearer Management

The program sustains populations of furbearers, promotes optimum harvests and economic, social, and cultural returns to trappers and their families. Furbearer production, the number of furbearers of each species sold by all trappers, is monitored. The program encourages humane trapping and promotes education and public understanding of furbearer management and fur industry.

A fifth and final draft of *Furbearer Management Policy and Procedure Directives* was circulated for comment to Manitoba Trappers Association, 64 Local Fur Councils, other trapper organizations, Resource Management Boards, Manitoba Keewatinowi Okimakanak, 20 First Nations, five Resource Management Boards, and Manitoba Metis Federation. Two workshops were held in The Pas to discuss the draft, at the request of the Opaskwayak Cree First Nation and Swampy Cree Tribal Council. This draft, intended to replace 1988 Fur Policy, recognizes and provides opportunity for trappers to ensure local practices and traditions are considered in decisions on management of Registered Traplines.

Harvest levels for all species decreased. Beaver and marten continue to be the two most important species; 17,400 marten and 23,309 beaver were taken. Other species such as mink, muskrat, white fox, racoon, and wolverine also declined.

Fur prices declined as the economy of Russia, major buyer of wild fur, continued to be weak. However, markets in other countries such as China, Korea, and Japan continued to strengthen. There are signs of revival of Russian demand, which would greatly strengthen the market. North Americans continued purchasing large quantities of beaver. Another mild winter and Russian economic problems continued lower prices for most species, decreasing license sales for the first time in three years.

Six trapper education workshops were held: 112 students graduated from courses at Minnedosa, Carberry, River Hills, Grand Rapids, Nelson House, and Tramping Lake. Resource students from Keewatin Community College, as well as elementary, junior high, and high school students from Sagkeeng First Nation and Hollow Water First Nation, used Tramping Lake and Wallace Lake field stations for outdoor education and cultural purposes.

A two-day workshop for aboriginal trappers, supported by Fur Institute of Canada and Indian and Northern Affairs Canada, advised about *European Union-Canada Agreement on Humane Trapping Standards*. Over 60 aboriginal trappers and First Nations and Manitoba Metis Federation representatives attended a two-day meeting at Opaskwayak Cree Nation in The Pas. Other extension, including additional workshops for aboriginal trappers, are planned for next year. Staff is working with Fur Institute of Canada Trap Research and Development Committee on humane trapping devices and manufacturing standards; nine devices have been approved for eight species. Withdrawal of European Union's anti-fur legislation, that would cripple Canadian fur markets, was largely dependent on development of international trap standards by this working group.

Table WI.2
12-3(f)-2 Big Game and Fur Management

Expenditures by Sub-appropriation	Actual 1999/00	Estimate 1999/00		Variance Over/(Under)	Expl. No.
	$	FTE	$		
Total Salaries and Employee Benefits	578.9	10.79	594.6	(15.7)	
Other Expenditures	234.1		233.5	0.6	
- Grants/Transfer Payments	89.9		89.9	0.0	
Total Other Expenditures	324.0		323.4	0.6	

Table WI.3
Fur Statistics for the Year Ending August 31st, 1999

Species	Quantity	Average Price $	Production Value $	% of Total Value	Royalty Per Pelt	Royalty $
Badger	115	20.30	2,335	0.1	0.50	58
Bear	1,006	70.81	71,235	3.5	1.00	1,006
Beaver	23,968	27.63	662,236	32.5	0.50	11,984
Coyote	1,820	33.65	61,243	3.0	1.00	1,820
Ermine	2,123	2.01	4,267	0.2	0.05	106
Fisher	1,895	41.79	79,192	3.9	1.00	1,895
Fox, Blue	1	20.35	20	0.0	0.50	1
Fox, Cross	141	18.25	2,573	0.1	0.50	71
Fox, Red	1,293	20.89	27,011	1.3	0.50	647
Fox, Silver	15	21.35	320	0.0	0.50	8
Fox, White	703	21.25	14,939	0.7	0.50	352
Lynx	246	81.73	20,106	1.0	1.00	246
Marten	17,555	41.05	720,633	35.4	1.00	17,555
Mink	6,179	18.19	112,396	5.5	0.50	3,090
Muskrat	31,786	2.30	73,108	3.6	0.05	1,589
Otter	1,739	60.48	105,175	5.2	0.75	1,304
Raccoon	2,623	16.16	42,388	2.1	0.50	1,312
Squirrel	7,325	0.95	6,959	0.3	0.05	366
Wolf, Timber	254	95.86	24,348	1.2	1.00	254
Wolverine	33	198.15	6,539	0.3	2.50	83
Total			$2,037,022			$43,743

Notes: 1. The Department's Fur Year runs from September 1 - August 31. Starting with the 1995/96 Annual Report, statistics which relate to the Fur Year will be based the most recent complete Fur Year. The 1999/00 Annual Report will contain information on the 1998/99 Fur Year Ending August 31, 1999.

Table WI.4

Number of Open Area and Registered Trappers and Estimated Value of Wild Fur Production for the Fur Year Ending August 31, 1999

Year	Open Area	Registered Trapline	Production Value $
1989-1990	6,447	2,219	1,563,805
1990-1991	5,030	1,730	1,125,373
1991-1992	5,495	2,018	1,681,582
1992-1993	5,851	1,870	1,518,850
1993-1994	5,546	1,818	2,694,978
1994-1995	5,611	1,993	2,539,052
1995-1996	6,336	1,865	2,639,452
1996-1997	4,827	1,975	3,715,834
1997-1998	5,315	2,049	3,306,968
1998-1999	4,750	1,856	2,037,022

Notes: 1. The Department's Fur Year runs from September 1 - August 31. Starting with the 1995/96 Annual Report, statistics which relate to the Fur Year will be based the most recent complete Fur Year. The 1999/00 Annual Report will contain information on the 1998/99 Fur Year Ending August 31, 1999.

2. The information on the 1994/95 fur year contained in this table will vary from that shown in the 1994/95 annual report as the information in that table was based on production estimates for the months of July and August.

Table WI.5
Hunting Licences Sold, 1999-2000

Type of Licence	Fee $	Number Sold	Revenue $
Game Bird			
Resident of Manitoba	19.63	14,310	267,276.30
Non-resident (Canadian)	60.75	693	41,523.75
Non-resident (Non-Canadian)	116.82	6,472	749,568.20
Wild Turkey			
Resident of Manitoba	20.56	621	12,247.76
Moose			
Resident of Manitoba	44.86	5,416	239,753.76
Resident of Manitoba – Conservation	35.05	262	9,076.93
Non-resident (Canadian)	255.14	14	3,570.96
Non-resident (Non-Canadian)	304.67	100	30,368.00
Elk			
Resident of Manitoba	44.86	4,345	194,916.70
Caribou			
Resident of Manitoba	40.19	486	19,532.34
Resident of Manitoba – Second	93.46	133	12,430.18
Non-Resident (Non-Canadian)	304.67	134	40,084.44
Non-Resident (Non-Canadian) – Second	700.93	42	29,397.06
Black Bear			
Resident of Manitoba	25.23	1,243	30,290.89
Non-resident (Canadian)	80.37	29	2,317.73
Non-resident (Non-Canadian)	172.90	1,724	295,337.20
Deer			
Resident of Manitoba	30.84	47,910	1,338,538.86
Non-resident (Canadian)	116.82	650	75,590.00
Non-resident (Non-Canadian)	172.90	1,546	264,038.40
Youth Hunting Licence Package			
Resident of Manitoba	9.35	2,908	24,464.80
Total Licence Sales			
Resident of Manitoba		77,634	2,148,528.52
Non-resident (Canadian)		1,386	123,002.44
Non-resident (Non-Canadian)		10,018	1,408,793.30
Total		89,038	3,680,324.26
Replacement	Variable	116	1,037.85
Grand Totals		89,154	3,681,362.11

Notes:
1. Revenue figures are net (less vendor's commission)
2. Non-Resident Caribou Licences are valid for both Canadian and Non-Canadian Hunters and are included with the Non-Resident (Non-Canadian) totals.
3. Second Caribou Licences were introduced for Residents and Non-Residents in 1999.
4. Resident Conservation Moose Licences are issued as a 2 licence/1 tag package (262 licences = 131 packages.

A Youth Hunting Licence Package for Residents of Manitoba was introduced in 1999.

Table WI.6

Hunting Licences Sales and Revenue

	Game Bird		Big Game		Wildlife Certificates		Totals	
Year	No. Sold	Revenue $	No. Sold	Revenue $	No. Sold	Revenue $	No. Sold	Revenue $
1990/91	34,571	737,503.00	60,006	1,467,265.00	61,717	465,219.00	156,294	2,669,987.00
1991/92	32,207	693,786.00	60,972	1,475,456.00	59,632	449,633.00	152,811	2,618,875.00
1992/93	27,034	791,592.00	60,229	1,830,776.50			87,263	2,622,368.50
1993/94	23,251	747,913.00	59,712	1,843,791.50			82,963	2,591,704.50
1994/95	23,331	793,088.50	62,485	2,009,832.00			85,816	2,802,920.50
1995/96	24,511	848,222.00	67,883	2,210,534.00			92,394	3,058,756.00
1996/97	24,789	890,609.50	71,955	2,208,504.00			96,744	3,099,113.50
1997/98	23,446	1,056,020.70	63,668	2,402,913.96			87,114	3,458,934.66
1998/99	23,816	1,112,930.77	59,743	2,423,557.18			83,559	3,536,487.95
1999/00	22,096	1,070,616.01	67,058	2,610,746.10			89,154	3,681,362.11

Note:

1. $5.00 per licence for wildlife enhancement was introduced in 1997/98.
2. Second licences for Resident and Non-Resident Caribou hunters was introduced in 1999/2000.
3. Youth Hunting Licence Package for Residents of Manitoba was introduced in 1999/2000.

Table WI.7

Wildlife Licence Revenues, 1999-2000

Type of Licence	Revenue $
Hunting Licences	
Game Bird Licences	$1,058,368.25
Wild Turkey Licences	$12,247.76
Black Bear Licences	$327,945.82
Replacement Licences	$1,037.85
Caribou Licences	$101,444.02
Deer Licences	$1,678,167.26
Elk Licences	$194,916.70
Moose Licences	$282,769.65
Youth Hunting Licence Package	$24,464.80
Total - Hunting	$3,681,362.11
Commercial Licences	
Trapper Licences *	$37,505.00
Fur Dealer Licences *	$1,925.00
Tanner Licences *	$90.00
Taxidermist Licences *	$2,520.00
Shooting Preserve Licences	$550.00
Dog Trainer Licences	$485.00
Game Bird Farm Licences	$680.00
Amphibians and Reptiles Licences	$232.00
Total - Commercial	$43,987.00
Total Revenue	$3,725,349.11

* Reflects revenue for the 1998/99 Fur Year ending August 31,1999.

Habitat and Land Management

The section develops programs, policies, and plans for securing, enhancing, and protecting habitat on Crown and private land. It leads the Branch's input to integrated resource management and environmental reviews, and sustainable development strategies. The section directs and co-ordinates planning, delivery, monitoring, and evaluation of waterfowl and upland gamebird management, and develops legislation, policies, procedures, guidelines, and plans. The section links the Branch with Manitoba Habitat Heritage Corporation's habitat enhancement, and co-ordinates the Manitoba Partners-in-Flight Program.

Wildlife Management Area Program

Wildlife Management Areas (WMA) continued a major role in the Network of Protected Areas, to fulfil commitment to national Endangered Spaces Campaign. Agreement was reached to protect all or part of 13 WMAs, totalling 39,683 ha., to the Campaign's standards.

Wildlife Enhancement Initiative provided funding for maintaining and enhancing WMAs: reprint Oak Hammock and Grant's Lake Managed Hunting Area brochures; upgrade facilities at Narcisse Snake Dens; Fleco-chop habitat plots in Narcisse WMA; produce Refuge signs; clean-up Mantagao Lake dump and upgrade campground facilities; enhance Whitewater Lake viewing facilities; erect infrastructure for Upper Assiniboine Willen Unit Grazing Project; and weed control in WMAs.

Reports on bioinventories at Alonsa, Whitemud Watershed, Dog Lake, Mars Hill, St. Malo and Rat River WMAs were published.

Land Management and Use

The section reviewed over 200 proposals, including General Permits, Crown land sales, leases, exchanges, Treaty Land Entitlement selections, and municipal development plans and by-law amendments. Policy proposals were reviewed for impact on wildlife and habitat, land management and use. Review of proposed subdivisions was transferred to Region staff.

Wildlife Lands Planning

Work commenced on assessing the wildlife lands system, which at present includes Refuges, Wildlife Management Areas, Special Conservation Areas, and Public Shooting Grounds. Each designation type and land unit is being evaluated for effectiveness against provincial and regional habitat goals. This will develop system-wide goals, recommend changes to designations, and habitat and landuse policy. Assessment of potential lands began; over 750 parcels in the south received initial assessment.

The geographic information system database of wildlife lands, in support of systems planning activities, continued to expand, including digital mapping of Crown landuse coding.

Project WILD

Project WILD is an environmental education program emphasizing wildlife, sponsored by the Canadian Wildlife Federation and implemented under agreement with each province's wildlife agency. Teachers are required to attend an in-service training workshop, usually conducted jointly by a wildlife specialist and a teacher trained as a workshop facilitator.

About 110 educators were trained to use Project WILD materials in six sessions by staff and volunteers. To complement educational system changes, linkages between Project WILD, the Pan-Canadian Science document, and the new math and language arts curricula have been identified and promoted. Manitoba hosted the annual meeting of Canadian Project WILD Co-ordinators.

Wildlife Sustainable Development Strategy

Public meetings were held to review *Wildlife Strategy Workbook,* developed for Manitoba Round Table, containing draft policies on management, protection and use of wildlife and habitat. The *Workbook* also contains recommendations for a new Wildlife Act.

Between April 6 and June 29, 22 public workshops and open houses on the *Workbook* were conducted by Round Table panels. Over 500 people attended workshops and 39 presentations were given or mailed in. A meeting was held with northern resource management boards in Thompson.

Workshop and Open House Locations

Dauphin
Swan River
Neepawa
Ashern
Flin Flon
Wabowden
Churchill
Boissevain
Thompson
Brandon
Arborg
The Pas
Norway House
Portage la Prairie
Winnipeg (2 days)
Ste. Theresa Point
Winkler
Steinbach
Virden
Pine Falls
Russell
Little Grand Rapids

In the south, common topics included more education, better wildlife depredation control and compensation, protecting spring bear hunts, hunting by Treaty Indians, shortage of management and enforcement resources, and stopping elk ranching.

In the north, topics included First Nations resource rights (not as stakeholders, but co-owners of resources), more education, better communications/consultation, resource allocation to forestry, better compensation for forest harvest and hydro development, and shortage of management and enforcement resources.

Comments received at workshops, returned questionnaires, and submissions have been compiled in *What You Told Us - Wildlife Strategy*; distribution to all registered participants is expected in early May 2000.

Environmental Impact Assessment

Over 150 ***Environment Act*** proposals or pre-clearances were reviewed. Most were highway upgrades, water-treatment facilities, and crop protection warehouses. Others included such developments as waste-disposal areas, bulk storage facilities, golf courses, irrigation ponds, utility corridors, hog and cattle operations, and town water supplies. Annual operating plans for Tolko Manitoba, Pine Falls Paper Company, and Louisiana Pacific Canada were reviewed.

Shorebird Habitat

Staff attended a three-day shorebird identification workshop (Chaplin Lakes, Saskatchewan). Observations were made of shorebirds on Lake Winnipegosis and along Hudson Bay coast near Churchill. This information was presented to Canadian Wildlife Service as data for National Shorebird Plan.

Waterfowl Management

Migratory bird populations are assessed annually for status, productivity, habitat conditions, and harvest. Manitoba co-operates with outside agencies in annual breeding pair surveys in agricultural areas and northern boreal regions, used to predict the fall flight.

The 1990s were much wetter than the 1980s. May 1999 ponds in the south (an indicator of habitat conditions) increased 24% over 1998 and were 1% above ten-year average and 2% over long-term average. Total duck numbers increased 12% and 53% in south and north, respectively. Mallard numbers showed a similar trend, increasing 17% in south and 83% in north. Most other duck species increased or remained stable. Fall flight of ducks was estimated to be well above long-term average. With generally healthy populations of ducks, hunting regulations were not changed from 1997. Restricted seasons were maintained only for canvasbacks.

Goose populations in south continued to prosper and expand their range. Escalating numbers in urban areas are causing increased concern. A total of 125,000 geese were counted inside Winnipeg Perimeter Highway in early October. Large numbers near Winnipeg airport are a safety issue. Complaints from golf courses and residents increased and a committee was formed to recommend solutions.

Concern about excessive snow goose populations continued expansion of hunting opportunity to increase harvest. A first spring hunting season for snow geese was opened in the north on May 1 for three weeks. Participation was light but residents were provided additional opportunity for food. Fall hunting season opening for snow geese was advanced to August 15 in north. Snow geese numbers exceed carrying capacity of many parts of the Arctic, causing widespread habitat damage, and increasing danger of crop damage in south.

Botulism continued to be a concern. An outbreak occurred on Whitewater Lake for the fifth consecutive year. Bird losses have varied: 1,700 in 1995, 116,495 in 1996, 48,465 in 1997, 18,500 in 1998, 15,512 in 1999. A monitoring program, initiated in 1997, may be reducing losses by predicting outbreaks, facilitating earlier carcass removal. A Botulism Working Group was formed with U.S. and Canadian representatives, and botulism research and management became an initiative under Prairie Habitat Joint Venture of North American Waterfowl Plan. Intensive biological investigations are underway to determine if outbreaks can be limited.

Upland Game Bird Management

Spring grouse surveys indicate populations increased slightly. Weather during nesting and rearing periods was favourable, mild winter and early spring followed by warm summer. Precipitation was variable, but adequate in most areas.

Sharp-tailed grouse populations increased in most areas. Ruffed grouse remained stable in Central Region, but declined in Northwest and Eastern Regions.

Wild turkey populations are prospering due to shelter and food provided by livestock-wintering operations. About 100 problem wild turkeys, removed from Birds Hill Park, were released in designated areas of the south. Turkey season was expanded to include the fall. A hunter questionnaire indicated that hunters were very successful (68%) and estimated harvest for both seasons was 422 turkeys. Turkeys continue to do well in most release areas of the south.

Work continued on upland game bird projects with private organizations such as Sharptails Plus Foundation and Wild Gobblers Unlimited.

Watchable Wildlife

The Watchable Wildlife Program further developed viewing opportunities and related economic benefits. This is a joint effort with Parks and Natural Areas Branch, and Manitoba Industry, Trade and Mines. Viewing and appreciation strengthen public interest in conservation and provide economic benefits for tour operators and related businesses.

Planning for site developments continued with co-operating organizations. The Working Group, chaired by the Branch, served as a catalyst to promote wildlife viewing in appropriate locations. The emphasis is on wildlife in its natural habitat, where public access will not interfere with wildlife or damage the site. Viewing of captive animals is not part of this program. Several developments, including sites in Whitewater Lake WMA and Delta Marsh, were completed.

The viewing guide, ***Pelicans to Polar Bears - Watching Wildlife in Manitoba***, was published and became a best seller in Manitoba. It was honoured at the Manitoba Book Awards as Best-Illustrated Book. It was developed by a steering committee comprising major stakeholders, including Manitoba Wildlife Federation, Manitoba Lodges and Outfitters Association, Manitoba Naturalists Society, Brandon Natural History Society, Parks Canada, Wildlife Branch, Parks and Natural Areas Branch, Manitoba Information Resources, and chaired by Tourism Development.

Critical Wildlife Habitat Program

This cost-shared program, involving Manitoba Habitat Heritage Corporation (MHHC) and other agencies on a project-specific basis, identifies, preserves, and manages critical habitats, especially native grasslands, habitats of unique/rare/endangered species, and forested landscapes.

The Program supports private, municipal, and urban land stewardship, resource inventories, land acquisition, land management, including native prairie management, and extension. The Department and MHHC fund many of these programs; others are supported by other agencies.

Tall Grass Prairie Preserve

Monitoring for orchid populations, insects, and songbirds continued. The Monitoring Avian Production and Survivorship station also continued. This North America-wide program provides critical, long-term data on population and demographic parameters for many land birds. A total of 97 birds were banded.

An orchid pollinator study continued that identified two sphinx moths as principal pollinators of endangered Western Prairie Fringed Orchid. Consequently, a Master's Degree project is being planned.

Research on tall-grass prairie restoration was initiated by University of Manitoba to study response of a disturbed site to burning, fertilizer application, and seeding of native species.

Continued management included mowing fence lines, preparation for fall burns, and maintenance at the interpretive site. Permanent vegetation plots and photo stations were monitored. These are sampled every few years to determine overall health. Efforts continued to locate, sample, and map sites of leafy spurge and St. John's wort. Biological control sites were monitored.

A demonstration project on controlled grazing continued, with Manitoba Agriculture and Food and Stuartburn-Piney Agricultural Development Association, to study effects on native vegetation and small white lady's slippers. A twice-over rotation system, with first grazing occurring between 3rd leaf stage and flowering, has been found to stimulate prairie grass growth. Removal of vegetation by grazing has been found to improve conditions for small white lady's slippers. A second rotational grazing project continued on 64 ha, including monitoring of effects on western prairie fringed orchid.

Residents held a successful Prairie Day, highlighting native plants and animals. An education program for four school grades continued to be well-received and included field trips to the Preserve. Guided tours were offered through July and August.

Mixed-grass Prairie Projects

Work in the mixed-grass prairie region comprises three main projects: inventory, grazing demonstration, and stewardship.

Part of comprehensive prairie inventory in southwest, work concentrated on prairies in the Carberry area south of Trans-Canada Highway. There were 141 sites inventoried, with 70 sites being *better quality* prairie.

Mixed-grass Prairie Grazing Demonstration project developed six demonstration sites on native mixed-grass prairie to illustrate economic and wildlife benefits of rotational grazing. Vegetation changes and livestock weight-gains were monitored. Vegetation sampling results are preliminary, as on some sites it began in 1998. Partners include Manitoba Habitat Heritage Corporation (MHHC), Manitoba Agriculture and Food, Ducks Unlimited, Prairie Farm Rehabilitation Administration (PFRA), Canadian Wildlife Service (CWS), Environment Canada (EcoAction 2000), and three Conservation Districts.

The Mixed-grass Prairie Stewardship Project is:

- developing a broad-based public awareness initiative,
- initiating a private land stewardship program to promote protection of remaining prairie, and,
- protecting sites through landowner agreements.

A brochure and six fact sheets, press releases and newspaper articles, a slide presentation, a display, and a Webpage have been produced. Partners include Seton Centre, MHHC, Manitoba Agriculture and Food, Ducks Unlimited, PFRA, CWS, Special Conservation Fund, and EcoAction 2000.

A workshop highlighting the Stewardship Project was included in Conservation Districts Annual Meeting. Results of four years of grassland surveys in southwest were presented, identifying significant blocks of mixed-grass prairie. Current and planned activities of public awareness and private land stewardship components were outlined.

Other significant activities include work with Parks and Natural Areas Branch on management plans for Spruce Woods Provincial Park, and with leafy spurge stakeholders group to deal with encroachment.

Urban Habitat Stewardship Project

This co-operative effort involves many agencies and groups engaged in habitat preservation in capital region. A steering committee comprising local, provincial and national conservation organizations and three levels of government supervises.

Capital Region Habitat Steering Committee studied feasibility of a Naturescape product and selected a Sub-committee to pursue it. Naturescape Sub-committee began producing Naturescape Manitoba. This educational package will assist organizations and individuals to transform small urban and rural areas, including backyards, into habitat, with information on native species and backyard project ideas. A marketing and distribution plan has also been prepared.

A natural resource survey of R.M. of Rosser was completed and a final report published.

Cooks Creek Inventory

The Branch partly funded a co-operative project with Cooks Creek Conservation District and Fisheries Enhancement Fund. The District contracted out a study to evaluate fish habitat and riparian zone wildlife habitat which was completed; a final report is in preparation.

Prairie Conservation Action Plan

A proposal submitted to Canada Millennium Partnership Program, in conjunction with Saskatchewan and Alberta, to deliver a prairie-wide Prairie Conservation Action Plan, was approved. This prairie-wide PCAP partnership was formed to promote stewardship of prairie landscape and natural resources and raise awareness of prairie ecosystems. It will promote appropriate relationships between land and people in which social, economic and environmental health are mutually sustaining. The goal is to inform communities to enable better landuse decisions and to work with communities and landowners to build a stronger land ethic. A work program is being developed for this initiative. Major components of the Manitoba program are direct conservation through land acquisition or conservation easements, stewardship initiatives involving private landowners, and key habitat identification in mixed-grass prairie area.

Natural Resource Inventories in Southern Manitoba

Inventory included survey of flora and fauna in Alonsa WMA and adjacent Community Pasture. Fieldwork included establishment and survey of plots for songbirds and plants, and recording other wildlife occurrences. A report has been completed for this project. Financial assistance came from Prairie Farm Rehabilitation Administration, Canadian Wildlife Service and Science Horizons Youth Internship Program. Reports will guide management planning in WMA and Pasture.

Alonsa, Whitemud Watershed, and Mars Hill Inventory Reports were published.

Extension

In addition to extension associated with each project, program displays were staffed at Rural Forum, Delta Marsh Birding Festival, Manitoba Grazing School, Fall Fair, Association of Manitoba Municipalities Annual Convention, Conservation Districts Annual Meeting, Vita Beef Days, Manitoba Ag Days, and Royal Manitoba Winter Fair. Presentations and field tours were given to groups.

A committee co-chaired with Manitoba Cattle Producers Association is planning the Prairie Conservation and Endangered Species Conference in Winnipeg in 2001.

National Wildlife Week

The Week was co-ordinated in consultation with national co-ordinator and Canadian Wildlife Federation. Staff chaired Manitoba Working Group, comprising conservation groups and wildlife agencies, which produced 30,000 copies of a bilingual doodle poster, with corporate sponsors. Posters and kits purchased from CWF were distributed to schools, libraries, municipalities, the Department, and Conservation Districts.

The 2000 theme, *Migration...An Incredible Journey*, focuses on migration and habitat protection. The Working Group sponsored *Spiels on Wheels*, whereby members of the Working Group and conservation organizations presented to schools. A mall display was held in Portage la Prairie.

Partners in Flight Manitoba

The coordinator position of Partners in Flight (PIF) Manitoba was incorporated into the Branch, providing more security for the program, and facilitating long-term planning.

PIF Manitoba completed the first (*Conceptual Plan*) of three parts of a Manitoba Landbird Conservation Plan, and began work on the Strategic Plan. Completion of Implementation Plan is anticipated in spring 2001. Ultimately, the Landbird Conservation Plan will direct landbird conservation, covering a wide range of habitats and conservation issues, and involving numerous partners within and beyond Manitoba.

PIF Manitoba worked with Manitoba Habitat Heritage Corporation Agro-woodlot Program to gather baseline data on biodiversity of wooded riparian areas in southwest. The project will provide a start point for riparian management activities. MHHC was also assisted in delivery of a 2-day rotational grazing workshop. PIF Manitoba presented on effects of grazing management on grassland birds.

With Manitoba Naturalists Society, PIF Manitoba assumed co-ordination of Nocturnal Owl Survey. Survey packages were sent out for approximately 90 routes.

Heritage Marsh Program

Support continued of investigation into health and productivity of Delta Marsh. Fish use of the marsh and its importance to Lake Manitoba fishery is being studied with Delta Wildlife Foundation, Ducks Unlimited, and Fisheries Branch. Impact of carp on marsh vegetation is being evaluated by use of fish exclosures. Information continues to be compiled as a database for future redevelopment projects. A feature sign was installed and a parking lot and viewing area constructed.

The interpretive dyke at Oak Hammock Marsh Wildlife Management Area was repaired and a base for a shorebird nesting island completed. Support was provided for controlling botulism at Whitewater Lake. Design and construction blueprints were completed for feature signs for Whitewater Lake and Akudlik Marsh (to be built and installed in 2000). Colonial waterbird studies were completed near The Pas. Purple loosestrife control support continues through financial support of biological control programs on Netley Marsh and other wetlands.

Dog Lake, St. Malo, and Rat River WMA wildlife inventories were published; all contain Heritage Marshes.

Forest Wildlife Guidelines

First iteration of Forest Management Guidelines for Wildlife was approved in 1989. The *Guidelines* enhance communication and cooperation among Wildlife and Forestry Branches and the forest industry, and integrate forest and wildlife management activities.

Detailed review began in 1996 to make the *Guidelines* more contemporary with current science. Concerns and issues from the first version were obtained from industry and staff. These, along with scientific literature and information from other jurisdictions, contributed to first draft of a second version. Discussions with Regional Wildlife Managers further amplified *Guidelines* contents. At year-end, a new version was ready for review by other disciplines.

Manitoba Forestry Wildlife Management Project

This project, which creates computer models to predict impact of forest management practices on supply and quality of habitats, began in 1991 with Wildlife Habitat Canada, Tolko Manitoba, Pine Falls Paper Company, Louisiana Pacific, Manitoba Model Forest, and Canadian Forest Service.

Separate and shared habitat requirements of over 200 wildlife species in boreal forest zone have been identified. A total of 19 'indicator' species have been selected for computer modelling, each of which is representative, in terms of shared environment, of a range of wildlife. For example, moose habitat encompasses requirements for 62% of species in the boreal zone.

Literature-based habitat supply models were developed for the 19 species and are being verified using Manitoba field data. New data are incorporated in the models, following a protocol which has been developed. The models can be used to develop habitat suitability maps for boreal forest zone. Resource managers can use these, along with other technologies, to guide long-term forest management plans over large areas of the zone.

Funding was not received for proposals developed, but funding is available from the partners to analyze data collected on pileated woodpeckers, to be done next year.

Hudson Bay Coastal Region Ecological Inventory Project

This Project will gather wildlife and vegetation data in Hudson Plain and Southern Arctic Ecozones, for environmental assessment and monitoring by Manitoba and Canada. This information will be essential to ascertaining impact of developments, such as expansion of a hydro line to Nunavut or a northern road system, and to initiate mitigative measures.

First year fieldwork involved monitoring for small mammals and plants at selected sites. Among findings were range confirmations of several mammal species, and range extension for one species. One interesting river observation was of a harbour seal 50 km. inland. Inventory also recorded a new addition to the flora of Manitoba (nard sedge, *Carex nardina*), and confirmation of two species (wormwood, *Artemisia borealis,* and locoweed, *Oxytropis hudsonica*). Range extensions were documented for several plant species. Plants collected during inventory will be deposited at University of Manitoba Herbarium. Mammal specimens were placed in Manitoba Museum collection.

Partners in this project are Manitoba Museum of Man and Nature, Manitoba Hydro, Environment Canada (Canadian Wildlife Service), Churchill Northern Studies Centre, and Parks Canada. Part of the study area falls in Split Lake First Nation Resource Management Board area. Discussions were held with the Board on project details and collaboration in future surveys.

Two reports were produced documenting results. Plans call for field investigations at selected sites over the remaining four years, to development vegetation maps and an inventory of plants and mammals.

Table WI.8
12-3(f)-3 Habitat and Land Management

Expenditures by Sub-appropriation	Actual 1999/00	Estimate 1999/00		Variance Over/(Under)	Expl. No.
	$	FTE	$		
Total Salaries and Employee Benefits	643.8	12.00	701.1	(57.3)	
Other Expenditures	178.1		194.6	(16.5)	
- Grants/Transfer Payments	645.9		645.0	0.0	
Total Other Expenditures	823.1		839.6	(16.5)	

Conservation Data and Nongame Management

The section provides services to sustain natural biological diversity, including maintenance and growth of a biodiversity information database. This includes systematic and peer-reviewed assessment of conservation status of all wildlife, including plants. The database enables staff to efficiently meet demand for a one-stop source of expertise and information on biodiversity. Establishment of the database makes Manitoba a member of an international network of biodiversity centres called the **Association for Biodiversity Information.**

Endangered Species Advisory Committee

Staff research and prepare wildlife species status reports for the Endangered Species Advisory Committee (ESAC), which advises the Minister on matters pertaining to species at risk. Two meetings were held: status reports for mule deer, lake sturgeon, woodland caribou, peregrine falcon, Culver's root, Riddell's goldenrod, a species of tiger beetle, buffalograss, Caspian tern, and black-footed ferret, were reviewed and revised. Priority future review will include species assessed nationally by Committee on the Status of Endangered Wildlife in Canada (COSEWIC) but not yet by ESAC.

Federal-Provincial Initiatives under *Accord for the Protection of Species at Risk in Canada*

Staff represents Manitoba on international and federal-provincial working groups and committees. Participation demonstrates our commitment to the Accord and the Canadian Biodiversity Strategy.

1. **The Committee on the Status of Endangered Wildlife in Canada (COSEWIC).** Manitoba is a voting member of this national committee that designates species at risk. Staff review and assess species status reports, enabling Manitoba to contribute to the national species-at-risk designation process. The proposed Canada *Species at Risk Act* (SARA) will legally establish COSEWIC. Manitoba contributed to restructuring COSEWIC and its procedures accordingly. More than 80 species were reviewed and a new World Conservation Union (IUCN)-based classification system was introduced. Small white lady's slippers were confirmed as *endangered* nationally and Peregrine Falcons were downlisted to *threatened* nationally. Procedural changes were reviewed and species status reports reassessed with modified IUCN criteria.

2. **The Committee on the Recovery of Nationally Endangered Wildlife (RENEW).** This working group is supported by participation on National Recovery Teams for endangered and threatened species in Manitoba. Concurrently, the recovery program for species at risk in Canada, RENEW, is being redesigned to better meet requirements of the *Accord*. Manitoba participates on national recovery working group, which drafted *Towards a Renewed National Recovery Strategy (RENEW): Re-defining the Processes, Responsibilities and Products.* Under SARA, three key documents will initiate and guide recovery action for each endangered or threatened species: Response Statement, Recovery Strategy, and Recovery Action Plan.

3. **Report on the General Status of Wildlife in Canada.** In 1998, the Canadian Endangered Species Conservation Council (CESCC) requested that federal and provincial/territorial governments cooperate to assess and report on general status of wildlife (including plants) by August 2000. A federal/provincial working group established to complete this project. Manitoba participated effectively by establishment and integration of Conservation Data Centre in the Branch. Section staff are systematically reviewing and assessing general status of plants and animals. The ***Report*** is to be updated every 5 years. Number of species assessed is expected to grow with each report. This will require considerable resources but results will be applicable to existing programs and ***The Endangered Species Act***.

Information Management

The section responded to 435 information requests, using Biological Conservation Data system. Requests came from federal and provincial governments, consultants, The Nature Conservancy, universities, and others (organizations, media, industry, individuals). Fifteen requests were for environmental impact assessments. Status of the Biological Conservation Data system (BCD) is summarized in Table WI.9. Part of BCD is available for live queries on Internet at www.gov.mb.ca/natres/cdc.

Although it is difficult count queries made specifically to the Database, the webpage received 6,695 hits (average 558/month) (Figure 2). Two contracts were awarded to produce species reports for the webpage's Species Field Guide. 21 reports were completed this year.

BCD and its Geographic Information System (BIOTICS) were assessed for Y2K problems. Although no impacts were found to be lethal to the databank or to the system, several programs were written and tested to allow normal queries.

Five species range maps were produced for status reports for evaluation by Endangered Species Advisory Committee. A North American range map for Western Prairie Fringed Orchid was produced for the revised COSEWIC report.

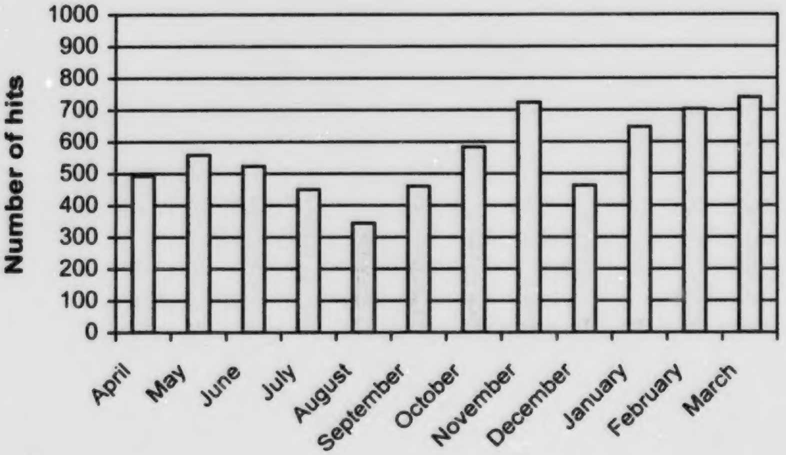
Annual data exchange with Association for Biodiversity Information (ABI) and The Nature Conservancy was completed to update BCD with data from other centres in ABI network. Data exchange was also completed with ABI-Canadian section.

Table WI.9
Status of the Biological Conservation Data System (as of March 31, 2000)

Information Type	Plant	Animal	Community	Other[1]	Total
Number of Element Occurrences[2]	1,298	1,458	62	439	3,257
Elements Tracked Provincially[3]	2,795	1,140	174	8	4,117
Provincially Ranked Elements[4]	2,224	661	174	0	3,059
Managed Areas[5]					448
Contacts[6]					215
Source Abstracts[7]					1,812

1. Includes elements such as waterbird colonies, and snake and bat hibernacula.
2. A specific example of a plant, animal or vegetative community at a specific geographic location.
3. The Element Provincial Tracking database allows information to be gathered on plant, animal, community and other elements.
4. Provincial plant, animal or community element ranks to help prioritize conservation efforts.
5. A recognized land unit with some degree of protection or management such as Wildlife Management Area, Voluntarily Protected Area, Provincial or National Park.
6. Knowledgeable individuals or organizations.
7. Information source about a plant, animal, community, or managed area (e.g., book, article, thesis, photograph).

Figure 2:
Monthly Number of Visitors on Biodiversity Database Webpage



Botany / Ecology

Rare Plant Surveys

Surveys for cynthia (*Krigia biflora*), Culver's-root (*Veronicastrum virginicum*), Riddell's goldenrod (*Solidago riddellii*), and hairy prairie-clover (*Dalea villosa*) produced new records in known ranges and confirmed historic records for Culver's-root near Green Ridge and for hairy prairie-clover at Glenboro. New records of other rare plants were documented.

Known sites of buffalograss (*Buchloë dactyloides*) were investigated for habitat characteristics for a status report for Endangered Species Advisory Committee.

Inventory of small white lady's-slipper sites continued, including investigation of new site reports. One new site was confirmed. Monitoring of a site restored in 1998 indicated moderate success with 72% survival of the plants.

Inventory data of western prairie fringed orchid (Platanthera praeclara) in Tall Grass Prairie Preserve and surrounding area updated status for COSEWIC review in 2000.

Requests for information were answered from Manitoba, Canada, and United States, including plant identification, status of medicinal plants, and review of species lists for Ecoregion 90 project.

Hudson Bay Coastal Region Ecological Inventory Project

Botanical inventory was conducted in Wapusk National Park along the Owl River and south of Cape Churchill, and in Cape Churchill Wildlife Management Area at south end of Christmas Lake Esker.

Biodiversity Inventories

Staff provided administration and support to bioinventory projects in Alonsa WMA and Alonsa Community Pasture.

Cooperative Initiatives

Cooperative efforts continued with neighbouring jurisdictions:

1. A working group on endangered Western prairie fringed orchid formed with North Dakota, Minnesota, and US federal agencies.
2. Work began for two ecoregional planning exercises with The (U.S.) Nature Conservancy, Nature Conservancy Canada, and neighbouring provinces and states; plans should be completed next year.
3. Manitoba and other provinces are cooperating with Parks Canada, Canadian Forest Service, World Wildlife Fund Canada, and The Nature Conservancy to develop a national vegetation classification, based on existing models used by the Conservancy and its provincial partners.

Zoology

Information on conservation status of freshwater clams was reviewed at workshops involving naturalists and scientists. A Manuscript Report on status ranks of clams was completed.

A total of 52 status reports were reviewed for COSEWIC meetings: eight invertebrates, seven fish, ten amphibians, four reptiles, 14 birds, and nine mammals. Animal status reports were revised for Endangered Species Advisory Committee. Other related research included reviewing COSEWIC-listed species not yet reviewed by Endangered Species Advisory Committee.

An owl monitoring project entered its fifteenth year. Great gray owl nesting density and reproductive success increased substantially over last year due to increased prey abundance. Of note was use of habitat by nesting great gray owls in apparent response to prescribed forest management cut-over area in southeast.

Nocturnal Owl Survey was again a success. A national owl monitoring workshop was hosted, at which all jurisdictions agreed to a modified national standard survey protocol. This will allow data to be pooled to assess national population trends.

A University of Manitoba graduate student began a Masters of Science degree with staff supervision. Research will build on owl survey techniques and examine influence of forest fragmentation and slope on distribution in Riding and Duck mountain areas. The student represented Manitoba and presented initial results at an international symposium in Australia.

A volunteer-based dragonfly survey was initiated. Over 200 volunteers participated and over 500 specimens were received. Expansion of the survey is planned, based on volunteer feedback. Survey data will contribute to dragonfly status assessment.

Nongame and Protected Species Management

This unit handles a wide range of issues affecting many species, including legislation, monitoring, and management plans.

Narcisse WMA Snake Dens

Many Manitobans and non-residents visit these red-sided garter snake hibernacula each spring. Staff interpreters explain snakes' life history and significance of dens.

A large dieoff occurred in spring 1999; few snakes emerged from the three main dens. Numbers have recovered considerably and south den has become the most active. This den had been largely inactive since skunks occupied it ten years ago.

University of Oregon researchers continued studies on garter snakes, marking over 10,000 near dens, and identifying marked snakes in summer habitat. Researchers estimated the WMA population at 60,000-65,000 snakes.

Adjacent highway traffic kills large numbers. A committee, including area residents and Manitoba Highways and Transportation, was established to reduce mortality. Manitoba Hydro has offered to install additional culverts through which snakes can pass; culverts have been obtained and work may take place in spring 2000.

Amphibians

Over 200 volunteers continue to assist the Branch and Manitoba Museum of Man and Nature with frog and toad surveys. Leopard frogs continue recovery from their dramatic decline in mid-1970s and are now abundant in many marshes. Participation continued (sixth year) in Declining Amphibian Populations in Canada Working Group.

Polar Bears

To ensure conservation, Manitoba and Nunavut are developing an agreement to share responsibility for long-term management of Western Hudson Bay population.

Woodland Caribou

Four woodland caribou ranges were assessed to be at high risk and were priorized for research and monitoring.

Radio-collared caribou were monitored bi-monthly to identify critical habitat in Kississing-Naosap Lakes area. Manitoba Hydro and Tolko Manitoba assisted with this project.

Near Wabowden, eight caribou with radio-collars were monitored to delineate major use areas. A graduate student from University of Saskatchewan determined habitat requirements of caribou and will publish results. A graduate student from University of Manitoba examined habitat use for calf-rearing. This will assist developing integrated woodland caribou/forest management plans.

An integrated woodland caribou/forest management plan, developed with Pine Falls Paper Company, Manitoba Model Forest, and others, is being applied to conserve the Owl-Flintstone lakes herd (east of Lake Winnipeg). This permits forest industry operations while minimizing negative effects to caribou and enhancing habitat. Monitoring continued of caribou response to an experimental cutting program, initiated in 1997; six GPS radio-collared caribou were monitored. This study, with Manitoba Hydro, MMF, and others, will clarify habitat use. A report on effectiveness of GPS collars was completed.

Chitek Lake Wood Bison Project

The herd has reproduced every year since its relocation to Chitek Lake, is now estimated at about 80 animals, and appears to be expanding its range. Standard VHF radio-collars were applied to two females, in addition to three animals previously collared. These collars assist in locating the herd and tracking habitat use. Trace-mineral salt blocks were placed to improve nutrition and meadows were burned to facilitate plant growth and reduce woody vegetation.

Peregrine Falcon Recovery Project

Two pairs of this endangered species are known to have nested. The pair on Radisson Hotel, Winnipeg, fledged three young (one died after fledging), while the Brandon pair (McKenzie Seeds building) raised two chicks. All suitable nest sites will be monitored in spring 2000.

Colonial Waterbirds

A survey of colonial waterbird use of Lake Winnipegosis was conducted. Over 50 islands contained breeding colonies. Species included: common terns, Caspian terns, ring-billed gulls, herring gulls, double-crested cormorants, American white pelicans, great blue herons and black-crowned night-herons.

Piping Plovers

High water on Lake Winnipeg and West Shoal Lake limited shoreline habitat for piping plovers. Nesting success was poor in all areas, including West Shoal Lake, Gull Bay sand spit (Walter Cook Special Conservation Area), Clandeboye Bay, and Grand Beach. Water levels were up about five feet on West Shoal Lake, inundating man-made islands and destroying fencing placed to protect nesting areas from livestock. The north Gull Bay sand spit was breached near its base, separating it from the mainland by several hundred meters. This island is expected to erode quickly; its value for piping plovers will be monitored annually. In contrast, a fall windstorm which caused considerable erosion on Lake Manitoba's southeast shoreline, may provide nesting habitat for several years.

Breeding Bird Survey

Staff co-ordinate volunteers with international Breeding Bird Survey (BBS). This assesses changes in abundance and distribution, especially species not monitored adequately by other surveys. Qualified volunteers survey along 40-50 routes annually during peak breeding season.

BBS data are recognized as the best, and often the only reliable, long-term indicator of songbird trends. Local and national BBS data since 1966 reveals that more species are increasing than are decreasing. However, over 80% of grassland-nesting birds are declining.

Efforts to stem declines include Grassland Birds Monitoring and Management Program and initiatives by Partners In Flight to address declining grassland and forest avifaunas.

Grassland Species Monitoring and Management

Prairie wildlife has suffered greater losses since settlement than any other group. The Grassland Species at Risk Program strives to provide monitoring and management, maintain biodiversity, raise public awareness, and promote conservation by local groups and landowners, to enhance species status and the grassland ecosystem. Target species include grassland birds designated as threatened or endangered under ***The Endangered Species Act*** including burrowing owl, ferruginous hawk, loggerhead shrike, and Baird's sparrow.

Burrowing owl has become a flagship species for conservation efforts across Canadian prairies. Efforts since mid-1980s focussed on better understanding causes of decline, management to halt declines, protecting critical nesting areas, securing nests from predators, and replenishing nesting populations through reintroductions. Nevertheless, nesting populations continue to decline. In recent years, reintroductions and other more intensive programs to prevent extirpation have largely shifted to heartland of Canadian range in Saskatchewan. Monitoring revealed three known nesting pairs and several unpaired owls, in extreme southwest.

Ferruginous hawk was a recent success story, increasing from a single nesting pair (1984), the first nesting record in nearly 60 years, to over 50 nesting pairs through much of 1990s. More recently, declines in its main prey (Richardson's ground squirrel or "gopher") caused nesting distribution to shift into extreme southwest and nesting populations have declined to under 40 pairs. Nesting areas near Cartwright, Ninga, Treesbank, Brandon, Lenore, Oak Lake, and Belleview have been vacated during 1990s. Nevertheless, nest structures installed in over 200 potential nesting areas in southwest have been used by over three-quarters of nesting pairs in recent years. These structures are more successful than natural nests because they are in more isolated trees (minimising abandonment due to disturbance) and are situated near ideal hunting pastures.

Nesting populations of loggerhead shrike have declined, as in much of its range. Populations in southwest number in hundreds, but have declined substantially since mid-1990s. Most occur in extreme southwest, including over 60% in a block of six townships stretching from Broomhill to the southwest corner. Recent nesting success was hampered by wet conditions, considerably reducing productivity since 1993. Banding and return data reveal unusually low return rates of adults and young, suggesting that excessive mortality on migration and in wintering areas may also be contributing to decline. In southeast, there are believed to be less than 50 pairs. Eight pairs were found just north of Winnipeg in 1999. The population is significant, as it is believed to represent a significant proportion of Canada's imperilled eastern (*migrans*) subspecies.

Incidental monitoring is also conducted annually to assess distribution and abundance of several other grassland species considered to be declining or at risk (Baird's sparrow, Sprague's pipit, grasshopper sparrow, Say's phoebe, Swainson's hawk, etc.). Comprehensive databases produced from observations aid environmental impact assessments and other management decisions.

Riverbottom Forest Assessments

Mature elms constitute most overstory in riverbottom forests in southwest. This habitat has been decimated by Dutch Elm disease. Although dying trees would normally be replaced by saplings, growth of shrubs and replacement saplings may be hindered by heavy grazing. Wildlife diversity and habitat quality were assessed along grazed and ungrazed segments of Souris and Antler Rivers south of Melita. Additional assessment will occur in 2000, and results analysed to determine how habitat quality and biodiversity are impacted by various grazing strategies, and to explore potential for co-operative restoration or management of depleted riverbank woodlots.

Table WI.10

12-3(f)-4 Conservation Data and Nongame Management

Expenditures by Sub-appropriation	Actual 1999/00 $	Estimate 1999/00 FTE	Estimate 1999/00 $	Variance Over/(Under)	Expl. No.
Total Salaries and Employee Benefits	354.0	7.00	366.3	(12.3)	
Total Other Expenditures	121.0		145.8	(24.8)	

Canada-Manitoba Waterfowl Damage Prevention Agreement

A dry fall in central and eastern portions of Manitoba brought an early cereal crop harvest, largely complete before large numbers of waterfowl staged in the south. However, spring flooding and fall precipitation delayed crop harvest in western and southwestern Manitoba and contributed to higher-than-average waterfowl crop damage. The Waterfowl Crop Damage Prevention Program cost about $325,100 of which Canada contributed $151,000.

The program operated two feeding stations, eight Crown land lure crops, and purchased one private lure crop in damage-prone areas. Staff assisted in protecting crops by providing farmers with shell crackers, scarecrows and propane scare cannons. A total of 23 scare cannon depots were also set up to provide farmers ready access to scaring equipment.

The program operated under a fifth one-year extension of the Canada-Manitoba Agreement. Negotiations for a new five-year agreement continue.

Table WI.11

12-3(f)-5 Canada-Manitoba Waterfowl Damage Prevention Agreement

Expenditures by Sub-appropriation	Actual 1999/00 $	Estimate 1999/00 FTE	Estimate 1999/00 $	Variance Over/(Under)	Expl. No.
Total Other Expenditures	325.5		338.3	(12.8)	

Wildlife Habitat Enhancement Initiative

Enhanced Funding

Hunting Information Services
Direct enquiries to Wildlife Branch pertaining to hunting regulations, enforcement, and technical issues such as species biology and populations, are growing in number. To improve client services, an Information Officer was hired to staff a dedicated telephone line during the period August through November. This individual was responsible for providing accurate and timely information in response to enquiries from the public, Manitoba Conservation staff, and other departments and agencies concerning big game and game bird hunting regulations.

In addition to the dedicated line, this information was also communicated in person, over the Internet, and through the distribution of publications and maps. The Information Officer received and responded to 435 enquiries over the 10 week period that the program was in place.

Aerial Surveys
Prior to 1998/99, aerial big game population surveys were financed by funds allocated during the annual estimates process. These funds amounted to $44.0. Since 1998/99 an additional $77.0 has been allocated to the program from the Wildlife Enhancement Initiative program. In 1999/00, the fund financed three aerial surveys: A moose survey in GHA 7A, a moose survey in GHA 17A and an elk survey in the south Interlake area. Refer to the section on Aerial Surveys for details on these surveys.

Problem Bear Study
This project began in 1998/99 and will be completed in 2000/01. The intent will be to document the effects translocation on problem black bears that are trapped in a semi-remote (Flin Flon) area. The results will be a germane to the ongoing issue of whether the practice of live-trapping and moving problem black bears is a) effective, and b) humane. Moving problem animals is costly. The results should help ensure prudent investment of animal control funds.

Captured bears were sedated and radio-collared, then released over 100 km from the capture site. Eleven bears have been radio-collared and six (sub-adults) have been fitted with ear tags only. Radio collared bears have been monitored from aircraft to determine dispersal patterns, survival rate and return rate. All six of the bears captured and released in 1998 returned to the captured site within the next year (2 returned within three weeks and 4 within a year). None of the five bears captured in 1999 have returned – these bears will be monitored to determine if they return in 2000.

Problem Wildlife
Enhanced funding of $15.0 was allocated for development of problem wildlife education and information material for public distribution. The funding was subsequently reduced to $7.0. A brochure, describing problems with urban deer and geese and providing information on preventative measures, was completed but could not be printed in time to be accommodated within this fiscal year's funding.

Wildlife Management Area Maintenance
Traffic gravel was spread and packed on the parking lot and curbs were installed at Whitewater Lake WMA. The garbage dump in the Mantagao Lake was cleaned up. Supplies were purchased for a controlled burn in Oak Hammock. Fence lines were cleared and infrastructure developed for a demonstration grazing project in the Willen Unit of the Upper Assiniboine WMA. Parking lot work and the installation of restrooms was completed at Narcisse snake dens. Sharp-tailed grouse habitat was improved in Narcisse WMA. Oak Hammock and Grants Lake WMA brochures were reprinted. Weed control was completed in various southwestern wildlife management areas.

Churchill WMA (Northern Bioinventory Project)
1999 was the first year of a planned five-year bioinventory of the Hudson Bay coast, carried out in partnership with the Manitoba Museum, Parks Canada and Manitoba Hydro. The first year focus was plants and mammals of Wapusk National Park and Cape Churchill Wildlife Management Area. Specific sites included the Owl River and Christmas Lake esker, an area east of the Twin Lakes Road and an area between Bird Cove and the Christmas Lake esker.

Representative habitat types were investigated at each location and habitat parameters recorded for both vascular and nonvascular plants. Voucher specimens were deposited in the herbarium at the University of Manitoba.

Trapping of small mammals supplemented observations, and there are now 40 species confirmed within Wapusk. Study skins and skulls were deposited in the Manitoba Museum. Provisional checklists of mammals of Wapusk National Park and adjacent Hudson Bay and vascular plants of Wapusk and the Cape Churchill Wildlife Management Area were produced.

Enhanced Revenue: Wildlife Branch Web Project
Although the Conservation Data Centre had begun to distribute biodiversity information on the web, and the Manitoba hunting guide was posted on the web, there was no clearly recognizable Wildlife Branch presence on this new information medium. Increasing use of the Internet as an information source, particularly by school children, suggested that written inquiries and brochures should be supplemented by a more contemporary medium to distribute Manitoba specific wildlife information.

Using outside contractors, a standardized design developed and tested. Frequently asked questions of staff were used to prioritize information to be posted. Four webmasters within the branch took training and posted information. The result was launched publicly at the end of the fiscal year.

Traditional Uses of Wildlife
The project encountered some delay. However, the faculty of Physical Education and Recreation Studies at the University of Manitoba developed a "public opinion survey" to assess the demographic data and public opinions surrounding the activity of hunting. Reviews to date have been positive, and discussions with client groups have produced support for this project which, to our knowledge, is still unique in Canada.

Conservation Data Centre Web Page
The Conservation Data Centre web site <http://www.gov.mb.ca/natres/wildlife/managing/index.html> provides information on the conservation status, range, and natural history of Manitoba plants and animals. This year an additional 21 detailed species fact sheets were added to the web site (12 animal and 9 plant species). These included the western prairie fringed orchid and the woodland caribou.

Woodland Caribou
Studies designed to identify critical woodland caribou habitat were carried out in the northwest, northeast, and eastern regions. Radio-collared caribou were relocated and their movements monitored. Critical calving and wintering areas were identified, and the use of disturbed areas such as forest cut overs and hydro right-of-ways was monitored. Manitoba Conservation collaborated with university students, Manitoba Hydro, forest industry and other stakeholders on this intensive adaptive management research program.

Table WI.12
12-3(f)-6 Wildlife Habitat Enhancement Initiative

Expenditures by Sub-appropriation	Actual 1999/00 $	Estimate 1999/00 FTE	Estimate 1999/00 $	Variance Over/(Under)	Expl. No.
Total Other Expenditures	224.7		225.0	(0.3)	

Chapter 11

Computer Graphics

The unit provides computer-aided design and drafting (CAD), desktop publishing, and geographic information system (GIS) services to the Department. Specialised CAD services include engineering plans for capital works and infrastructure maintenance projects. Desktop publishing produce high-quality informational materials for programs, policies, and initiatives. GIS services provide expertise for spatial data analyses and preparation of geo-referenced maps.

The unit received 360 requests for service, of which 344 were completed, 10 were rescinded, and 6 are in progress. Figure 3 shows distribution of staff time among clients.

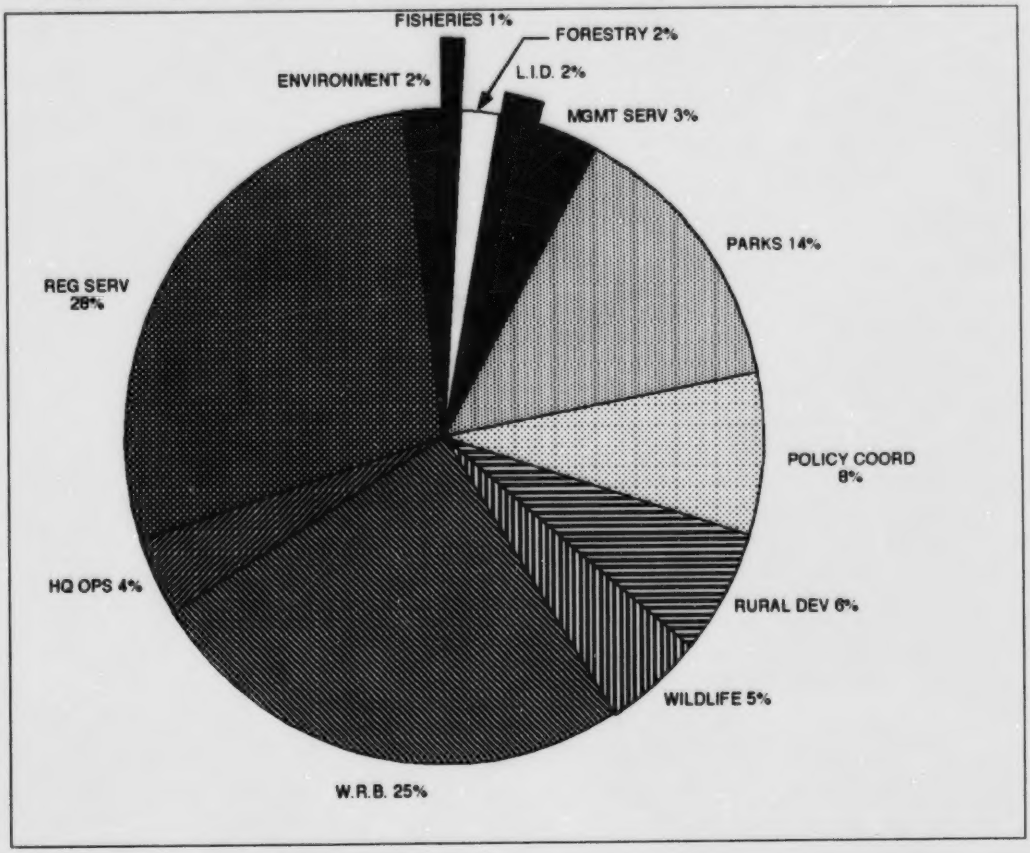


Figure 3: Breakdown of Staff Time Spent by Client

Services provided included:

- CAD services prepared and finalized engineering plans for maintenance or construction of such drainage projects as Beckman, Main, Selkirk Line, and South Buffalo Drains. Construction plans were prepared for Sturgeon Creek Fishway, Portage Diversion Gravity Inlet structure and Dominion City Right of Way Plan.

- GIS services included researching recommendations, implementation and co-ordination of a province-wide meta data collection and cataloguing system, fully compliant with international standards. Geo-referenced maps were prepared to assist aquifer sensitivity analyses and watershed planning activity by Water Resources Branch.
- Desktop publishing services included complete publication of booklets and brochures including ***2000 Hunting Guide*, *2000 Anglers' Guide*, *Hunter Safety Manual***, *Grant's Lake Managed Hunting Area* brochure, ***Report on Water Use and Allocation Workshops*, *Pembina River Basin Management Plan*, *Oak Lake Management Plan***, *Upper Assiniboine River Basin Study-Water Quality Trends* brochure, ***Submission Guidelines for Ten Year Forestry Management Plan*, *Ecosystem Based Management Newsletter*, *Management Plan*** for Atikaki and Grand Beach Provincial Parks, ***Hayes River Heritage River Nomination*** booklet, *West Hawk Lake* brochure and *Aboriginal Moose Management* brochure.
- Prepared storyboards and brochure for public consultation meetings for Shoal Lake Basin Management Planning Initiative.
- Continued support to Manitoba Geographical Names Program, to honour war casualties.
- Prepared 2000 summer, winter and seasonal-use maps, and trail and route maps, for Parks and Natural Areas Branch. Designed and produced signage and permits for Parks campgrounds.
- Provided service to Manitoba Intergovernmental Affairs by preparing maps of Upper Assiniboine River, Pembina Valley and Whitemud Watershed Conservation Districts.
- Prepared a variety of materials, such as slides and overheads, for presentations to public meetings and hearings.
- Prepared annual updates of Crown Land Operational Plan maps for Crown Land Classification Committee.
- Supported Water Resources Branch's Water Licensing Program, by preparing location plans for wells at various townsites, farms and industrial operations. Also provided mapping services to support drainage licensing.
- Performed miscellaneous tasks such as plotting hydrology data and mean monthly levels of lakes. Designed report covers, charts and graphs for various publications. Maintained Department organizational charts for Human Resources Branch.

Table CG.1

12-3(g) Computer Graphics

Expenditures by Sub-appropriation	**Actual 1999/00 $**	**Estimate 1999/00 SY**	**Estimate 1999/00 $**	**Variance Over/(Under)**	**Expl. No.**
Total Salaries and Employee Benefits	543.3	12.00	537.5	5.8	
Total Other Expenditures	52.8		55.1	(2.3)	

Chapter 12

Habitat Enhancement Fund

The Fund provided a grant to the Manitoba Habitat Heritage Corporation, Critical Wildlife Habitat Program component, for protection of habitat by land acquisition, protection agreements (leases), and habitat development. Critical Wildlife Habitat Program projects are approved by the Board of Directors of the Corporation. Appointment to the Board is by the Lieutenant Governor in Council.

Table HE.1

12-3(h) Habitat Enhancement Fund

Expenditures by Sub-appropriation	**Actual 1999/00**	**Estimate 1999/00**		**Variance Over/(Under)**	**Expl. No.**
	$	**FTE**	**$**		
Other Expenditures - Grants/Transfer Payments	50.0		50.0	0.0	
Total Other Expenditures	50.0		50.0	0.0	

Chapter 13

Special Conservation and Endangered Species Fund

The Fund promotes principles of sustainable development through grants to community projects which embody close linkage between conservation and the economy. The Fund supported 30 projects, including wildlife rehabilitation, soil management, water management, lake rehabilitation, wetland research, waterfowl habitat preservation, and environmental education.

Table SC.1

12-3(j) Special Conservation and Endangered Species Fund

Expenditures by Sub-appropriation	Actual 1999/00	Estimate 1999/00		Variance Over/(Under)	Expl. No.
	$	FTE	$		
Other Expenditures	0.0		0.0	0.0	
-Grants/Transfer Payments	313.1		432.1	(119.0)	
Total Other Expenditures	313.1		432.1	(119.0)	

Chapter 14

Sustainable Development Coordination Unit

The Unit furthers the understanding and implementation of sustainable development by:

- Preparing strategies and education and promotion programs,
- Providing administrative and research services to Manitoba Round Table for Sustainable Development,
- Co-ordinating review of policy and strategy implementation by Interdepartmental Planning Board,
- Developing the provincial Sustainable Development Strategy and component strategies,
- Developing sustainability indicators, preparing the provincial ***Sustainability Report*** and Sustainable Development Code of Practice,
- Co-ordinating application of ***The Sustainable Development Act*** *to* public-sector organizations,
- Administering the Sustainable Development Innovations Fund, and,
- Other tasks assigned by the Minister.

The *Act* directs development of components of the Sustainable Development Strategy. This includes, in each case, preparation of a suggested policy-and-actions *Workbook*, public consultation on the *Workbook*, and a subsequent *What You Told Us* report to record public input and the Round Table's final policy recommendations. With the Round Table's advice, a document is prepared to present adopted policies, a status report and implementation plan. Staff coordinated public consultations on the *Manitoba Sustainable Development Strategy* and the *Fish*, *Wildlife* and *Minerals* component strategies.

The Unit coordinated review of the Province's Sustainable Development Strategy to determine its suitability for adoption, as required by July 1, 2000 under the *Act*. This included requesting comments on revising the existing Strategy from various organizations, and meeting with Community Round Tables and other groups. A survey on the existing Strategy was sent to 372 organizations including Community Round Tables, business, industrial, Aboriginal, environmental, social, health, resource and local government, and all provincial departments. A presentation on *Sustainable Development Strategy Review* was given by the Manitoba Round Table to the Community Round Table Workshop at Rural Forum in Brandon. Youth Round Table members and Unit staff operated a booth at Rural Forum and distributed materials, including copies of the survey and Strategy. The Strategy and survey were added to the Unit's Web site. Survey comments were compiled and options identified for the Manitoba Round Table.

The *Minerals Strategy* seeks to protect and rehabilitate the environment from effects of mineral development, create mining industry jobs, efficiently extract and use minerals, and mitigate social and economic effects of mine closure. Mineral policies have been adopted by the Province; the Strategy is in the status-report and implementation-plan phase. The Minerals Working Group reviewed implementation of the policies and completed a preliminary draft of the *Minerals Strategy Status Report*.

The Act requires establishment of provincial procurement guidelines within two years of proclamation. Unit staff met with Procurement Services and Manitoba Conservation staff to initiate a plan and timeline for preparing simple and effective guidelines.

In recognition that the economy is an essential component of sustainable development, the Round Table continued preparation of a market incentives and fiscal policy strategy. Consideration was given to alternative means to traditional command-and-control compliance based on regulation. Internal review of the draft *Market Incentives and Fiscal Policy Strategy Workbook* was completed. The draft, now fully developed, is awaiting full review, approval, and printing.

Following Urban Aboriginal Strategy community consultations, the Province approved the policy *Applying Manitoba's Sustainable Development Policies for Aboriginal People Living in Winnipeg*, and established an implementation committee comprising the Province, Winnipeg, Canada, and representatives of Aboriginal communities, non-profit organizations, and the private sector. A Memorandum of Understanding between Canada and Manitoba, *Cooperation and Coordination of an Urban Aboriginal Strategy*, was signed.

The Unit assisted the Education Subcommittee of Manitoba Round Table in reporting on focus-group testing and public sessions, recommendations from which have been prepared for Round Table consideration.

Information exchange was co-ordinated with Canada Fisheries and Oceans on their stakeholder consultations on management strategy for western Hudson Bay.

Table SD.1
12-3(k) Sustainable Development Coordination Unit

Expenditures by Sub-appropriation	**Actual 1999/00**	**Estimate 1999/00**		**Variance Over/(Under)**	**Expl. No.**
	$	**FTE**	**$**		
Total Salaries and Employees Benefits	219.7	5.00	229.1	(9.4)	
Total Other Expenditures	240.8		259.2	(18.4)	

Chapter 15

Land Information Centre

The Centre administers land-related programs pursuant to legislation, policy, land-use plans, and principles of sustainable development. It comprises Administration section (including Manitoba Geographical Names Program and Manitoba Land Related Information System co-ordination), Lands Branch (comprising Crown Lands Operations and Crown Lands Registry), Survey Services (Land Survey System, Manitoba Spatial Reference Network, and Survey Services Programs), Remote Sensing (including Topographic Mapping), Distribution Centre (including Geographic Mapping), and Land Mapping Services (Cadastral Mapping).

L.I.C. co-ordinates activities under Manitoba Land Related Information System, including production and maintenance of databases for digital, topographic, and township mapping. It maintains the automated Crown Land Information System and Registry of dispositions of Crown land, manages use of Crown lands, surveys land for government, provides remote sensing, thematic mapping, and land parcel services, and administers map and aerial photograph distribution and sales.

Administration

The section provides comprehensive financial, administrative, and personnel services, and the provincial authority for geographic names.

The section coordinates activities and programs to meet Departmental goals, prepares annual expenditure and revenue estimates, participates in identifying funding strategies, monitors and reports financial data, and ensures annual expenditures are within budget.

The section participates in departmental and inter-departmental working groups on administrative matters, policy issues, and systems development, and directs review and development of policies for use and disposition of Crown lands, and of legislative and regulatory revision.

Administration prepares and submits Orders-in-Council and Cabinet Submissions for grant, sale, and exchange of Crown land, setting conditions of transfer, or amending previous Orders, under ***The Crown Lands Act***. Legislative Orders-in-Council are prepared to amend Regulations under ***The Wildlife Act*** and ***The Forest Act***. A total of 32 Orders were submitted and approved.

Manitoba Geographical Names Program

The Program is provincial authority for enhancement, maintenance, dissemination, and protection of geographical nomenclature. It provides toponymic information and expert advice and consultation to senior management and external clients. Staff represent Manitoba on the Canadian Permanent Committee on Geographical Names, and participate on provincial and federal advisory committees.

Responsibilities include managing historic and current names, maintaining a names database, distributing toponymic information, developing and implementing policies and procedures for geographic naming, establishing and monitoring toponymic quality control in government documents, researching and processing decisions on new and established names, managing the Commemorative Names Project, and student/volunteer training and development.

Commemorative Names Project

Staff organized and assisted at a cairn unveiling at Brookside Cemetery, Winnipeg, where two Commemorative Names Certificates were presented and a wreath laid in a ceremony initiated by Korea Veterans Association.

Volunteers continue to research biographical information from families of men and women who died in World War II and Korean War, to fully record the lives of those for whom features were named.

Table LI.1

Manitoba Geographical Names Program

Manitoba Geographical Names Program		1998-99	1999-00
New geographical name decisions		270	35
Commemorative Name Certificates issued		358	66
Ministerial letters drafted and distributed with Certificates		326	75
Toponymic quality control tasks		28	46
Responses to inquiries by:	Correspondence, Fax	583	417
	Telephone	1,543	1,177
	Visitors	128	93
	E-mail	217	1,583

Other activities included:

- Assisted publication and distribution of revised ***Gazetteer of Canada - Manitoba*** **(1999)**, and produced a searchable version on compact disc.
- Organized and participated in presenting a Commemorative Name Certificate Display to British Commonwealth Air Training Plan Museum, Brandon.
- Produced toponymic data in shape file (.shp) format, with accompanying metadata, for distribution to private and public sectors, and for Manitoba Land Initiative Website.
- Produced digital maps, such as to show geographical features named after Manitoba WW II Fatal Casualties in the Royal Canadian Navy, or those from specific communities, *Distribution of Geographical Names in the Province*, as requested by government or clients.
- In addition to Commemorative Names Project volunteers, a Heritage Resource Officer was seconded for two years from Culture, Heritage and Tourism, to research and compile major publications such as ***Geographical Names of Manitoba***.
- Co-ordinated and participated in a federal/provincial meeting to revise policies and procedures for processing names of Native Lands and other applicable geographical features.
- Assisted development and implementation of the Program's Home Page on Internet.

Manitoba Land Related Information System

The Division coordinates land and resource-based information through the Manitoba Land Related Information System (MLRIS). Main activities include development of a shared base map for the Province and operation of an information sharing mechanism. The primary upcoming objective is further progress of a photo-based map for the North. The product is valuable for many users, important in the administration of Crown Lands, and for support in mining, forestry, land claims, and resource management activities in the North. Increased hydro-electric production and transmission, and development of a road along the east side of Lake Winnipeg are major activities in the area. The potential for increased linkages with Nunavut will include a road and a power transmission line. To facilitate these activities a proper base map is a logical first step.

Table LI.2
12-4(a) Administration

Expenditures by Sub-appropriation	Actual 1999/00 $	Estimate 1999/00 FTE	Estimate 1999/00 $	Variance Over/(Under)	Expl. No.
Total Salaries and Employee Benefits	550.1	12.00	600.8	(50.7)	
Total Other Expenditures	510.1		483.8	26.3	

Crown Lands Operations

The section administers Crown land and wild rice programs. It works with regional Land Managers to ensure sound management practices and land-use decisions consistent with policies, procedures and legislation. Allocations and dispositions of Crown land include sales, exchanges, leases, permits, reservations, and easements.

Disposition	New	Renewed
Easements	8	–
General Permits	100	2,558
Miscellaneous Leases	21	443
Sales completed	132	
Sales (mines and minerals) completed	26	
Sales cancelled/rejected	63	
Sales appeal process	9	–
Sales applications in process	141	
Vacation Home Leases	-	224
Vacation Home Permits	–	522

Crown land and waterlots are allocated for wild rice culture under the authority **of The Wild Rice Act** by Development and Production Licenses. Development Licenses are issued for three years to test-seed and develop a stand. If successful, the License can be converted to a Production License. There are currently 135 Development Licenses, 170 Production Licenses and 13 Block Licenses.

Treaty Land Entitlement

The unit administers transfer of land to Canada to fulfill obligations under the *Treaty Land Entitlement Framework Agreement*. Using a custom-designed computer GIS system, the section identifies selection locations, calculates acreages, displays previous dispositions, and reports to Manitoba, Canada, and First Nations. The section is involved in negotiation and administration of other native land claim settlements.

Table LI.3
12-4(b) Crown Lands Operations

Expenditures by Sub-appropriation	Actual 1999/00 $	Estimate 1999/00 FTE	Estimate 1999/00 $	Variance Over/(Under)	Expl. No.
Total Salaries and Employees Benefits	465.3	13.00	535.5	(70.2)	
Total Other Expenditures	1,201.9		1,080.0	121.9	

Crown Lands Registry

The section maintains a secure, complete, and accurate record of current and historic dispositions of Crown land and related transactions. This is the only authoritative source of original grants of land and mineral rights from the Crown, including dispositions previously made by the Dominion Government. These records are maintained in the records vault and Crown Land Information System (CLIS). Information dissemination to the Branch, other Departments, Crown agencies, public, and private sectors, occurs through computerized queries, reports, and paper or microfilm searches. CLIS also houses and generates accounting records and transactions for Lands Branch, Parks and Natural Areas Branch, and Aboriginal and Northern Affairs.

Development of a new Land Registry/Management system continues. This system will integrate geographic information system technologies to enhance customer service and assist data entry.

The section plans to improve delivery through increased interaction with its clients, which include the public, legal firms, consultants, Manitoba Historical Society, Industry, Trade and Mines, Manitoba Hydro, Agriculture and Food, MTS, Land Titles Offices, Intergovernmental Affairs, and Aboriginal and Northern Affairs.

Table LI.4
12-4(c) Crown Lands Registry

Expenditures by Sub-appropriation	Actual 1999/00 $	Estimate 1999/00 FTE	Estimate 1999/00 $	Variance Over/(Under)	Expl. No.
Total Salaries and Employees Benefits	207.1	6.00	238.0	(30.9)	
Total Other Expenditures	154.4		183.4	(29.0)	

Survey Services

The Branch administers and enforces ***The Surveys Act** (Part II)* and *The Survey of Mining Claims Regulation*, approves Plans of Survey for disposition of land under ***The Crown Lands Act*** and *The Mineral Disposition and Mineral Lease Regulation* (***The Mines and Minerals Act***), represents Manitoba on matters related to provincial boundaries, provides survey services to other Departments, and maintains Manitoba Spatial Reference Network and Land Survey System. Public benefits include a secure process for conveyance and reservation of Crown land and rights therein, an economical survey service for acquisition and disposition of land, a survey system for determining property boundaries, and a geodetic survey network for spatial referencing of land-related information.

Land Survey System Program

The program restores survey monuments, instructs surveyors, examines Plans of Survey of Crown lands, maintains the Province's boundaries, and operates a Crown Land Survey Information Centre.

The Branch placed 339 monuments in the township and parish-lot systems of survey, provided 43 sets of survey instructions, examined 75 Plans of Survey, and responded to 172 information requests. Survey Services provided 490 marker posts to private land surveyors for marking location of survey monuments.

Staff continued converting land and geodetic survey documents, such as Plans of Survey, control survey station descriptions, and land surveyors' field notes, to electronic format for a database. Work continued on a Website to provide information on Internet.

Manitoba Spatial Reference Network Program

The program maintains a network of survey monuments whose positions and/or elevations have been determined. Disciplines such as civil engineering, resource management, and land surveying require this network to determine position and elevation of natural and man-made features and related information. This is essential to ensuring compatibility of all geomatics, navigation, and other spatial information, so that it may be exchanged and merged seamlessly and economically.

The Manitoba Spatial Reference Network (MSRN) is integral to the Canadian Spatial Reference System (CSRS), contributing to a reliable national infrastructure for referencing spatial information. Staff constructed 117 MSRN primary stations, and continued upgrading the network, which now comprises 173 primary and about 10,000 secondary stations, with CSRS 1998 co-ordinate values.

A license from Natural Resources Canada was continued to modify, reproduce and redistribute Canadian Geodetic Bulletin Board Service Digital Information, providing 'one-stop shopping' for basic geodetic information.

Work continued on developing standards, specifications, and guidelines for resource surveys using global positioning system (GPS) technology in support of geographic information systems. GPS determines exact position anywhere on or above the earth's surface in any weather, anytime, from satellite signals.

A federal-provincial-territorial program to enhance and expand application of GPS technology was discussed. This will provide a free national real-time GPS correction distribution service over Canada and beyond, improving efficiency and effectiveness and enabling applications not previously possible. It will benefit government and industry by improving standardization of data collection and positional accuracy, while lowering costs and improving services that rely on spatial referencing in such applications as natural resource management, environment monitoring, agriculture, civil engineering, land management, trucking and shipping, fleet management, aviation, marine operations, mineral exploration, mining, facilities management, and emergency services.

Survey Services Program

The program provides land, engineering, and control surveys and related services for acquiring and disposing of land, constructing and maintaining public works, and spatially referencing land-related features and information, including:

- Subdivision, right-of-way, parcel, and easement surveys,
- Terrain modelling and contour surveys, including beds of waterbodies,
- Cross-section and centre-line profile surveys,
- Project-specific mapping and engineering control surveys,
- Topographical and location surveys,
- Deformation and subsidence surveys,
- Land dimensions, quantities, and spatial co-ordinates,
- Administrative boundary plans,
- Legal descriptions and title plots,
- Structure location certifications, and,
- Land transaction documents.

Major client departments included Highways and Government Services (Construction and Maintenance), Conservation (Water Resources, Parks and Natural Areas, Crown Lands), Aboriginal and Northern Affairs (Agreement Management and Co-ordination, Community Support Services), Government Services (Land Management Services), Industry, Trade and Mines (Mines Branch), and Intergovernmental Affairs (Local Government Support Services, Water Services Board).

Land description services are offered to municipalities, law and survey firms, and citizens, for Crown land reservations, dispositions, and other consents or rights, for such purposes as subdivisions, sales and exchanges, plan cancellations, and closing bylaws. These services include preparation of legal descriptions, calculation of areas, reviews of easement documents, reports on mines and minerals, and preparation of Minister's Orders and consents.

Survey Services achieved its cost-recovery objective. Surveyors and survey technologists carried out 361 projects: 213 land descriptions, 130 land surveys, and 18 control surveys.

Table LI.5
12-4(d) Survey Services

Expenditures by Sub-appropriation	Actual 1999/00 $	Estimate 1999/00		Variance Over/(Under)	Expl. No.
		FTE	$		
Total Salaries and Employee Benefits	1,240.1	32.00	1,510.3	(270.2)	1
Total Other Expenditures	384.8		501.3	(116.5)	
Total Recoveries	(1,158.4)		(1,529.6)	371.2	

Explanation:
1. Variance is due to decreased demand for survey services.

Remote Sensing

The Manitoba Remote Sensing Centre (MRSC) processed satellite data for Canadian World Crop Monitoring Program, Canadian Global Change Program, and Parks Canada, covering all of Canada using GEOCOMP satellite image processing system. Cloud-free image composites were created every 10 days from April 11 to October 31.

MRSC investigated fluctuating water levels on Lake Winnipegosis near Salt Point using LANDSAT imagery. 1994 and 1997 were compared and differences classified; the products helped to resolve flooding issues.

For Capital Region Sustainable Development Strategy, MRSC was contracted to generate a land use/cover database, to assist development and landuse planning.

MRSC was consulted to determine whether RADARSAT data could monitor aerial extent of wild rice in northern lakes. The study, of Kisseynew Lake in northwest, determined that RADARSAT imagery can provide aerial assessment of wild rice canopy and is effective for inventory purposes.

MRSC was contracted to examine a Winnipeg industrial site by aerial photography, to do a historical environmental assessment over 1950–1993 to resolve contamination issues.

MRSC mapped extent of spring flooding in southwest for Water Resources Branch, using RADARSAT and SPOT satellite imagery. These data proved valuable in assessing fields qualifying for compensation, and locating poorly-drained lands for hydrologic analysis.

The International Coalition (TIC) requested a map showing 1997 flooded areas in both North Dakota and Manitoba. RADARSAT data facilitated the work, completed in cooperation with U.S. Army Corps of Engineers.

Prairie Farm Rehabilitation Administration, in cooperation with rural municipalities, manages an Environmental Tax Credit Program which rewards farmers who practice environment-friendly stewardship. Eligible land cover for credit includes land with over 40% crop residue prior to spring seeding. Under contract, MRSC determined three levels of crop residue using LANDSAT imagery.

MRSC produced satellite information requested by the R.M. of Grahamdale, Selkirk and District Planning Area, R.M. of Whitemouth, and R.M. of Reynolds, to update 1994 land use/cover information to 1998.

MRSC continued generating a land use/cover database east of Lake Winnipeg. An area surrounding Lac du Bonnet and a region north of Winnipeg River were completed, an inventory requirement for Model Forest.

Tours and demonstrations were given to over 40 groups.

Topographic Mapping Section

The Section completed geo-referencing the contour map created from ground surveys in 1950, shortly after the Red River flood, for Water Resources Branch. Individual points, surveyed for interpolating the contours, were registered to 1:20,000 base for accurate placement. The result is an integrated set of location and elevation points that can be considered prairie elevations for digital elevation model creation. This, combined with GPS elevations on roads, raised pads and dykes, will be used for flood modeling in a computerized decision-support system being built by Water Resources Branch in conjunction with the International Joint Commission.

Digital topographic compilation was completed for the area covered by 1:30,000 aerial photography, 612 townships in a block bounded by the Saskatchewan border, Range 7E, International Boundary, and Township 17.

Digital topographic data continues to be generated for Forestry Inventory, and for extension to 1:20,000 map coverage, utilizing 1:60,000 aerial photography. This compilation is enhanced by addition of corridors along roads to assist Forest Inventory in base mapping.

Drain designation mapping has been completed on 55 watersheds for Water Resources Branch's GIS. Through enhancement of data, drains are designated by degree of contribution to stream flow, and installation of culverts to assure continuous flow of water in the elevation model being developed for that Branch.

Table LI.6
12-4(e) Remote Sensing

Expenditures by Sub-appropriation	Actual 1999/00 $	Estimate 1999/00 FTE	Estimate 1999/00 $	Variance Over/(Under)	Expl. No.
Total Salaries and Employee Benefits	634.9	13.00	634.6	0.3	
Total Other Expenditures	115.7		156.2	(40.5)	
Total Recoveries	(5.3)		(23.7)	18.4	

Distribution Centre

The Centre serves government and public with map sales, air-photo library, support for projects, and reproduction of material. The market for these products shifted significantly from primarily government to primarily public.

A total of 41,000 maps were sold directly or through appoximately 155 dealers in Manitoba, northwestern Ontario and north-central U.S.A.. Federally-produced maps experienced increasing sales to outdoor recreational users, due to marketing at U.S. outdoor recreational venues. Dealer numbers grew due to the Regional Distributor Agreement with Fisheries and Oceans Canada, increase in discount rate for hydrographic charts, and expansion of market boundaries. Sale of hydrographic charts decreased due to charts being produced illegally and sold more cheaply. Fisheries and Oceans Canada and Distribution Centre halted production of these charts and are working with the federal Justice Department to prevent illegal production. A conviction against one producer of illegal charts has set a precedent for action against others; sale of these products will increase once illegal productions are unavailable. New products and product lines have been added, geared to client needs and requests. Printing on demand for certain products is now available, reducing need for large press runs.

The Centre launched the government's first credit-card-secured e-commerce site, *Canadamapsales.com*, offering maps–all topographic maps for Canada are available–to a market without geographic boundaries, that never closes. With development of the site came a new look for Product Distribution. A new logo, developed for *Canadamapsales.com*, was incorporated into all aspects of business. The site, which has been very successful, generating $5,500 in the first three months, will be continually updated with new products and improved indices.

To promote sale of mapping products and the e-commerce site, marketing included redesigned advertising for the Yellow Pages, ***Anglers' Guide***, Travel Manitoba publications and display headers. Product brochures were redesigned with the new logo and brochures added to cover additional products available. To promote map sales to our largest client group, the outdoor recreational user, for whom Canada is a favourite destination, *Canadamapsales.com* participated in the following recreational consumer shows: Chicagoland Sport Fishing Show, Eastern Sport Show (Pennsylvannia), Northwest Sport Show (Minneapolis), Winnipeg Boat Show, and four All-Canada Shows (St. Louis, Indiannapolis, St. Charles and Green Bay).

Air Photo Library supplied Manitoba Hydro with flightline maps of photography flown over the past 75 years. Manitoba Hydro scanned these into a computer environment, allowing easier access to the index system, for viewing and ordering photography.

There were 7,500 aerial photographs added to the Air Photo Library, bringing holdings to 877,669. A total of 22,000 products were supplied to customers, Mapping Program, and other agencies. The photomechanical unit purchased a scanner and computer to scan photography and supply quick prints, at better quality than the former copyproof camera.

Geographic Mapping

Thematic mapping for government (50 projects) included Park boundary plans, forestry maps, lake depth charts, Parks brochure updates, School Division boundary updates, lodge location map, and updating and publishing other products. Lake depth charts are being revamped gradually; the 200 charts available will be issued in the new format as stocks deplete. The 1:1,000,000 base map was updated to show new Parks and Park boundaries and is available, produced on demand.

Table LI.7
12-4(f) Distribution Centre

Expenditures by Sub-appropriation	Actual 1999/00 $	Estimate 1999/00 FTE	Estimate 1999/00 $	Variance Over/(Under)	Expl. No.
Total Salaries and Employee Benefits	372.6	9.00	376.7	(4.1)	
Total Other Expenditures	318.4		296.5	21.9	
Total Recoveries	(87.6)		(95.0)	7.4	

Land Mapping Services

Cadastral Mapping Section

Primarily, the Section develops and maintains digital (cadastral) property parcel data, generally in computer files. Principle files are a graphics file displaying computed boundaries of all parcels on Plans of Survey in a community or a project area, including streets, lanes and walkways, and several tabular files of parcel information such as identifiers, centroids, and legal descriptors.

Developed digital parcel data is fundamental to a province-wide information system. It provides users with means to spatially reference their land data for such as infrastructure, assessment, ownership, and land use, to a common, reliable, current, and homogeneous geo-referenced base. Primary users include Manitoba Hydro, Manitoba Intergovernmental Affairs, Water Resources Branch, municipalities, and communities, including Winnipeg and Brandon.

The Section develops, maintains, and distributes coordinate positions for the geodetic survey reference framework, the Township (Dominion Land Survey) System, and the land parcel survey system. It coordinates acquisition, implementation and maintenance of geomatics-based software, hardware, and database systems.

Major Section activities included:

- Developing digital land parcel data to meet increasing demand. Over 26,000 parcels were added to Information Utility including parcel data sets for City of Dauphin, Towns of Morden, Gimli, Swan River, Melita, Deloraine, Boissevain and Lac du Bonnet, and full parcel mapping of Parish of St. Peter. The Section also completed Registered Survey Plan bases in two Townships in R.M. of Rosser and a Township near Ile des Chenes.
- Maintaining databases to ensure timeliness and utility. Updating was completed of 18 digital data sets covering Brandon. The Section maintains some 345,000 Registered Survey Plan parcels, including 235,000 parcels in Winnipeg.
- A major redesign of parcel coordination software to improve efficiency and productivity of the data set product, initiated in 1998, was put into production. The new software (***CEDIT***, for Cadastral Editor) was developed under contract with a firm specialising in GIS software. This, with implementation of new hardware/software systems under Desktop Technology Initiative, improved production. The Branch will give *CEDIT* to other departments to permit coordinated development of digital land parcel information.

The Section is working on a comprehensive digital township/quarter-section grid for all Manitoba, in response to need identified by Crown Lands Branch and others. This will merge existing southern data with computed data for surveyed and unsurveyed northern townships into a single product with unique parcel identifiers. This master grid will furnish a single source for geo-referencing spatially-related or Dominion Land Survey information to a common base. It may be possible to make this available to the public on compact disc.

The Section promotes its digital products on the Province's Website and anticipates being a key player in providing property mapping data under Manitoba Land Initiative. The Section responded to 67 phone requests for property mapping and/or coordinate data, including inquiries from the public. The cadastral component of the Website averaged over 700 hits per month.

Table LI.8
12-4(g) Land Mapping Services

Expenditures by Sub-appropriation	Actual 1999/00 $	Estimate 1999/00 FTE	Estimate 1999/00 $	Variance Over/(Under)	Expl. No.
Total Salaries and Employee Benefits	497.4	9.00	504.0	(6.6)	
Total Other Expenditures	227.0		264.6	(37.6)	

Chapter 16
Infrastructure and Minor Capital Projects

Equipment

Programs are supported by purchasing equipment and constructing minor infrastructure. Funding was allocated for purchase of computer hardware, office renovations, colour copiers and groundwater investigation equipment.

Table IM.1
12-5(a) Equipment

Expenditures by Sub-appropriation	Actual 1999/00 $	Estimate 1999/00 FTE	Estimate 1999/00 $	Variance Over/(Under)	Expl. No.
Total Other Expenditures	394.0		485.6	(91.6)	

Water Projects

Projects (most being multi-year) included: Assiniboine River dyke refurbishment, improvements to Netley Creek and Buffalo Creek, Red River Floodway refurbishment, relining of Seine River (Floodway) syphon, Manitou Dam discharge conduit refurbishment, groundwater investigations, and equipment purchase for Pasquia pumping station.

Several waterway crossings were replaced or repaired at a cost of $1M under the bridge replacement program. Funds for Conservation Districts were transferred to 2000/2001.

Table IM.2
12-5(b) Water Projects

Expenditures by Sub-appropriation	Actual 1999/00 $	Estimate 1999/00 FTE	Estimate 1999/00 $	Variance Over/(Under)	Expl. No.
Total Other Expenditures	4,781.9		5,290.4	(508.5)	

Park Facilities

The program replaced or improved major infrastructure, including campground electrification in Grand Beach, Manipogo, St. Malo, Clearwater Lake, and Asessippi Provincial Parks. Washroom buildings were upgraded and garbage transfer stations were developed throughout the system. Resurfacing of Birds Hill roads and general facilities upgrading for the Pan Am Games was completed. Major renovations to the Alfred Hole Goose Sanctuary visitor centre in Whiteshell Provincial Park were completed. Development and settlement of the two subdivisions on Hecla Island continued. Duff Roblin Provincial Park was developed.

Co-operative projects included construction of Spruce Woods Provincial Park Centre, the development of a visitor centre at the Whiteshell Fish Hatchery, a family and disabled fishing dock and trail at Lyons Lake, and continued bicycle trail development in south Whiteshell.

Table IM.3
12-5(c) Park Facilities

Expenditures by Sub-appropriation	Actual 1999/00 $	FTE	Estimate 1999/00 $	Variance Over/(Under)	Expl. No.
Total Other Expenditures	4,184.1		4,152.3	31.8	

Recoverable from Capital Initiatives

Capital Initiatives funding of $1,500,000 was provided in the Water Projects capital appropriation for upgrading and replacement of waterway crossings. The costs of this program were recovered from the Capital Initiatives Program to this account to offset this cost.

Table IM.4
12-5(d) Recoverable from Capital Initiatives

Expenditures by Sub-appropriation	Actual 1999/00 $	FTE	Estimate 1999/00 $	Variance Over/(Under)	Expl. No.
Total Other Expenditures	(1,499.7)		(1,500.0)	0.3	

Chapter 17

Amortization of Capital Assets

With the implementation of new accounting standards with respect to capital assets, the department expensed the annual amortization cost of all completed assets based on the useful life of each asset. Assets which were purchased or constructed in 1999/00 were expensed at one-half the annual amortization rate. The amortization expense also included the portion of corporate information technology projects attributable to the department.

Table ACA.1

12-6 Amortization of Capital Assets

Expenditures by Sub-appropriation	**Actual 1999/00**	**Estimate 1999/00**		**Variance Over/(Under)**	**Expl. No.**
	$	**FTE**	**$**		
Total Other Expenditures	1,709.5		1,926.6	(217.1)	

Chapter 18

Flood Proofing Programs

Funding continued for moving, raising, or dyking Red River Valley homes, businesses and properties.

A $100M, Phase II agreement with Canada to continue and complete Red River flood recovery was administered. The $50M provincial contribution was allocated among five program elements:

1. Home/business floodproofing, $20.3M,
2. Community dyking, $17.5M,
3. City of Winnipeg work, $5.2M,
4. Environmental impact mitigation, $2.5M, and,
5. Provincial flood control infrastructure, $4.5M.

Administration of the home and business floodproofing program continued, providing funding to about 350 clients, for a total federal/provincial expenditure of about $20M. Co-ordination of community ring-dyke projects continued with completion of feasibility studies and development of contract documentation for construction to begin next year. A feasibility study was completed to identify and priorize work in Winnipeg; work began on parts of the environmental impact mitigation and scientific data element, and the provincial infrastructure element continued.

Table FP.1

12-7 Flood Proofing Programs

Expenditures by Sub-appropriation	Actual 1999/00 $	FTE	Estimate 1999/00 $	Variance Over/(Under)	Expl. No.
Total Other Expenditures	23,478.5		63,887.2	(40,408.7)	

Explanation:

1. Variance is mainly due to delays in construction projects and the agreement with the City of Winnipeg not being concluded.

Chapter 19

Capital Investment

Funding is allocated in Part B, Capital Investment, to acquire, develop or construct assets required by departmental programs. In 1999-2000, the department purchased two road graders, two garbage packers, a backhoe, a dump truck, a tractor, a riding mower, a boat and three motors, and survey equipment. This equipment was required to replace aging equipment and to update survey technology.

Table CI.1

B-7 Capital Investment

Expenditures by Sub-appropriation	Actual 1999/00	Estimate 1999/00		Variance Over/(Under)	Expl. No.
	$	FTE	$		
Total Other Expenditures	617.1		280.0	337.1	1

1. Variance is due to unanticipated vehicle and equipment replacement resulting from equipment failure.

FORMERLY PART OF MANITOBA ENERGY & MINES

Chapter 20

Petroleum and Energy Branch

The Branch was transferred in mid-year from Manitoba Energy and Mines. It:

- Fosters sustainable development of oil and gas resources, and,
- Promotes investment in efficient energy use and development of economically viable alternative energies.

Petroleum

The oil and gas sector is significant to the provincial economy, particularly in the southwest. In 1999, 581,206m^3 of oil was produced, valued at about $95 million, equivalent to about 25% of the province's refined petroleum product needs. As there are no refineries here, all production is exported through Enbridge Pipelines system to refiners in Ontario and United States.

The industry spent about $57 million to explore and develop new oil pools and to operate about 1,900 non-abandoned wells, providing about 300 jobs directly, and at least as many indirectly. Crown royalties, production taxes, and revenue from leasing oil and gas rights, totaled $6.2 million. The industry pays significant income, sales, capital, payroll, and fuel taxes to the Province, and more than $2.4 million in property tax to municipalities.

Wapella Pipeline System, a $3.6 million, 36.9km pipeline from Kirkella to Enbridge's Cromer terminal, was completed and began delivering crude oil from fields in Saskatchewan and Manitoba.

The Branch administers ***The Oil and Gas Act*** and regulations, which govern exploration, development, production, transportation, and storage of crude oil and natural gas, and ***The Oil and Gas Production Tax Act***. Branch officers and inspectors are designated as Workplace Safety and Health Officers and are industry's first point of contact on oilfield-related environmental issues.

The Branch participates on a Federal-Provincial Task Force reviewing regulations on energy pipelines and developing alternatives to increase efficiency and effectiveness. The Task Force has made recommendations to the Council of Energy Ministers on a number of options and will, after further stakeholder consultation, be presenting an action plan to Ministers in the fall of 2000.

Energy

Manitobans spend about $2.8 billion annually (about 10% of Provincial gross domestic product) to heat and light homes, power business, industry and agriculture, and fuel transportation. About 75% of this is met by natural gas and refined petroleum products, imported from western Canada. Installed electrical generating capacity in Manitoba is 5,137 megawatts.

The Branch administers ***The Energy Act*** and promotes investment in efficiency measures and development of viable alternative technologies.

The Branch represents Manitoba at the Energy Sector Table, negotiating the *Energy Chapter* to the *National Agreement on Internal Trade,* and leads in representing provinces in considering jurisdictional issues on electricity system reliability. In conjunction with Environment and the Sustainable Development Coordination Unit, the Branch represents Manitoba's energy interests in the national process developing a plan to deal with climate change. Branch staff are taking a more active role in Public Utilities Board and National Energy Board issues on natural gas.

Administration and Geology Section

Administration

The section:
- Administers Crown oil and gas rights,
- Collects petroleum revenue and administers drilling incentive programs, and,
- Administers performance deposits and the Abandonment Fund Reserve Account.

Petroleum Revenues

The Section collects revenues and conducts sales of Crown leases and exploration reservations. Annual rentals, Crown oil royalties and freehold oil taxes are collected, and lease renewals and extensions are processed. The Section enforces the *Crown Disposition Regulation, Crown Royalty and Incentives Regulation,* and parts of *Drilling and Production Regulation.*

The Section collected $6.2 million from industry, 82% more than last year ($3.4 million), comprising $1.9 million in Crown oil royalties, $3.3 million in freehold oil taxes and $1.0 million from Crown lease sale bonuses, rentals and fees.

Sales of Crown Leases and Exploration Reservations

Three Crown oil and gas lease sales were held: 31 leases, covering 4,075 ha, sold for $623,900, 115% more than last year ($289,700).

Since 1979, the Province has collected $29,666,796 from disposition of Crown oil and gas rights. At December 31, 1999, 103,338 ha of Crown oil and gas rights were under disposition; an increase of 13% over last year. The Section also processed 92 lease renewals, 14 cancellations, 66 transfers, and 60 company amalgamations.

Data Collection

The Section collected monthly oil production data and data on disposal and injection of salt water for active wells. At December 31, 1999, there were 1,914 non-abandoned wells. Digital production histories are available for all wells.

Drilling Incentive Programs

The Drilling Incentive Program provides licensees of wells drilled between January 1, 1992 and January 1, 2004, a "holiday" volume of production exempt from Crown royalties or freehold production taxes; volume earned is a function of oil price and location of the new well relative to other wells. Holiday volumes of up to 10,000 m^3 can be earned by a new well. In the eighth year of this program, 29 wells earned an average of 5,994.7 m^3 of holiday oil volume. There were 159 wells producing holiday oil in December 1999. A total of 21 wells completed their production of holiday oil volume during the year.

A special deep-formation holiday oil volume of 50,000 m^3 is provided for the first producing well in each deep formation from which there is currently no production. No claims have been made for the deep formation incentive.

Any horizontal well drilled prior to January 1, 2004 receives a holiday oil volume of 10,000 m^3. Eight horizontal wells were drilled in 1999.

Effective November 11, 1995, any marginal well where a workover is completed prior January 1, 2004, receives a 500 m^3 holiday oil volume. A marginal well is one that, over the previous 12 months, has been shut-in or whose production averages less than 1 m^3 per operating day. Major workovers include re-entry of an abandoned well, deepening or recompletion from one pool to another, and repair of casing. A total of 14 wells were producing under the program in December 1999.

Detailed information on drilling incentives, Crown royalties, and freehold oil production taxes, is available from the Branch in the booklet *Manitoba Petroleum Fiscal Regime*.

One well producing under the Manitoba Drilling Incentive Program (1979-87) continued to qualify for reduced Crown royalty/tax rates.

Reduction in Crown Royalties and Freehold Oil Production Taxes

New third-tier Crown royalty and freehold oil production tax rates have been introduced. Oil produced from any vertical well drilled on or after April 1, 1999 receives a reduction in Crown royalties and freehold oil production tax. Third-tier status also applies to production from inactive wells that are reactivated, and enhanced recovery projects beginning after April 1, 1999.

Geology

The unit prepares reports on geology and hydrocarbon potential to encourage and assist exploration and development. A system for designating field and pool boundaries is maintained; at January 1, 2000, there were 13 oil fields and 159 active pools. In 1999, field and pool codes for 33 new wells were assigned. The unit provides consultation and assistance to public and industry. Accomplishments include:

- Published *Unlocking Manitoba's Oil and Gas Potential*, co-authored with Engineering, Paper 97-25, ***Journal of Canadian Petroleum Technology***, Special Edition 1999, 38/13,
- Published an updated Map M-4, *Upper Virden Member, Lodgepole Formation, Virden Field Area: structure contour (1:50 000)* in the Stratigraphic Map Series, and,
- Published a new Map M-3a, *Cruickshank Crinoidal Facies, Lodgepole Formation, Daly Field Area: structure contour (1:50 000)* in the Stratigraphic Map Series.

The unit assesses petroleum potential of Crown lands in the southwest for the Natural Lands Working Group in the Endangered Spaces Campaign. In consultation with industry, advice was provided for land use designations in Wildlife Management Areas and Provincial Parks.

Engineering and Inspection Section

Engineering Unit

Under authority of *Drilling and Production Regulation* and *Geophysical Regulation*, the Unit processes drilling licenses, geophysical licenses and applications to recomplete, suspend, or abandon wells. It also issues permits for field processing facilities. A total of 33 drilling licenses and 3 geophysical licenses were issued, and 58 technical well operations applications were processed.

Technical studies are undertaken of oil and gas reserves and enhanced recovery potential. Information and advice are provided to industry and public at Winnipeg, Virden and Waskada offices.

A technical paper outlining horizontal drilling activity was presented at the 7th International Williston Basin Horizontal Well Workshop in Regina.

The Branch abandoned four wells and a battery that had been seized as a result of continuing non-compliance. Costs totalling $50,500 were recovered from the company's performance deposit, sale of seized equipment, and the Abandonment Fund Reserve Account.

The Branch is working with Tilston-area residents and local producers to address air quality concerns. All oil and gas facilities in the area have been upgraded to reduce emissions to ensure air quality guidelines are met. The Branch continues to investigate complaints, assist with air quality monitoring, and participate on the Tilston Community Advisory Group.

The Drilling and Production Regulation requires the Minister to review the Regulation's effectiveness by January 1, 2000. The Minister recommended that the regulation be amended after stakeholders had been consulted. The Branch began consultation on seven main issues: solution gas flaring and venting, hydrogen sulphide safety guidelines for oil and gas facilities, funding of government abandonments, operation of wells with casing leaks, well data submission requirements, compliance and enforcement, and streamlined administration.

Inspection Unit

Regulations are enforced on geophysical, drilling, production, and pipeline operations. Specifically, inspectors license and inspect facilities, investigate complaints, witness specific operations, and interpret and communicate requirements to industry. Inspectors also inspect industry operations under ***The Workplace Safety and Health Act***. District offices are located in Virden and Waskada.

The production-related wells and facilities that number in excess of 2000 are inspected at least once annually. A total of 179 non-compliance orders were issued. There were 122 applications for facilities processed and 96 excavation permits issued. Inspectors visit all abandoned wellsites to ensure proper abandonment and cleanup and establishment of vegetation. There were 29 wells issued a *Certificate of Abandonment*, allowing release of performance deposit requirements. The Unit manages environmental protection in reclamation of oil or salt-water spill sites. There were 40 spills inspected. Inspection participated on the steering committee of Manitoba Producers Oil Spill Cooperative. The Unit takes an active role in management of oilfield waste and other environmental issues.

Two Improvement Orders were issued under ***The Workplace Safety and Health Act***, and complaints were investigated on hydrogen sulphide and sulphur dioxide gas emissions, and oil and gas facilities.

Digital Information Support Section

The Section develops and maintains computer systems and conducts special projects. Focus continued on development of *Manitoba Oil and Gas Well Information System*, and several projects were begun to assist Inspection. Accomplishments include:

- Historical gas production entered into database; all available data is now entered,
- *Well Inspection Tracking System* project began; this will assist Inspection in tracking infractions and ensure adherence to Regulations,
- Updating of historical well operators completed,
- Continued Website expansion to list Crown land acquired by the Province, and list cores available for viewing, and
- Over 4,000 technical well records were scanned, enhancing information retrieval.

Abandonment Fund Reserve Account

The Account is established under ***The Oil and Gas Act***. Non-refundable levies on geophysical and well licenses, battery operating permits, and inactive wells, fund operation or abandoning of a well or facility where the licensee failed to do so. The fund can be used to rehabilitate an abandoned well or facility site, or address any adverse effect caused. Expenditure from the Account on behalf of a licensee automatically creates a debt of the licensee to the Crown, recoverable in court.

Abandonment Fund Account Activity

Opening Balance (April 1, 1999)		130,527.45
Deposits		
Licenses		6,500.00
Permits		150.00
Inactive Wells		19,400.00
Interest		4,291.42
Expenditures		(50,465.30)
Shannon Abandonments		
Town of Virden, June 21, 1999, Waste Disposal Fees	465.30	
Kiwi Resources Ltd., June 22, 1999, Well Abandonment, 2-13-11-27,11, 12 & 14-18-11-26 @ $10,000.00 per well	40,000.00	
Kiwi Resources Ltd., November 30, 1999, Inv# 354B Cut & Cap	10,000.00	
Total	50,465.30	
Recovery of Expenditures		
Shannon Abandonments		
Royal Bank, July 22, 1999,deposit, proceeds from GIC#900032321-002 (principal $2,000.00 interest $40.99)	2,040.99	
Royal Bank, July 22, 1999, deposit proceeds from GIC #910032653-001 (principal $12,000.00 interest $13.38)	12,013.38	
Royal Bank, July 22, 1999,deposit proceeds from GIC #910032653-001 (interest for 1 year)	432.00	
Past Interest, July 22, 1999, interest from GICs	935.04	
Norcoul, September 15, 1999, proceeds from sale	700.00	
R. and B. Chapman, September 15, 1999, proceeds from sale	288.00	
Gerrand, September 15, 1999, proceeds from sale	600.00	
Kiwi Resources Ltd., September 15, 1999, proceeds from sale	13,410.00	
Total	30,419.41	
Closing Balance (March 31, 2000)		140,822.98

Minister's and Director's Orders

The Oil and Gas Act authorizes the Minister and the Director of Petroleum to issue Orders relating to drilling, production, storage and transportation of oil and gas. The Minister's authority, for Orders relating to well spacing, enhanced recovery, and maximum production rates, is delegated to the Director in routine circumstances. The Director has authority to issue Orders relating to saltwater disposal, designation of fields and pools, and designation of new oil status.

The following Ministerial Orders were issued:

- s. 79(2) Validation by Order of the Minister, July 22, 1999, Rideau Petroleums and Edward Dennis Arndt, NE 1/4, SE 1/4 & SW 1/4 7-3-29 (WPM),
- Unit Agreement, July 21, 1999, Approval of Unit Agreement, Birdtail Unit No. 1,
- Unit Agreement, October 29, 1999, Approval of Unit Agreement, Souris Hartney Unit No. 1,
- Waterflood Order No. 9*, November 1, 1999, Approval of waterflood operations in Souris Hartney Unit No. 1, and,
- Waterflood Order No. 10*, March 20, 2000, Approval of waterflood operations in Daly Unit No. 4, *(*Order made by Director of Petroleum under delegation)*

The Director made the following Orders:

- SWD Permit No. 172, December 3, 1999, Renaissance Kirkella DIR SWD A15-3-12-29WPM,
- SWD Permit No. 173, February 21, 2000, Tundra Goodlands SWD 9-25-1-24WPM,
- SWD Permit No. 174, February 21, 2000, Tundra Virden Prov. SWD 7-29-9-25WPM,
- Field Order, January 1, 2000, Fields designated under Clause 11(4)(b), and
- Pool Order, January 1, 2000, Pools designated under clause 11(4)(b).

Petroleum Industry Overview 1999

New Wells Drilled	28
Oil Production	581,206m^3 (3,657,471 bbls)
Value of Oil Sales	$95,129,406.
Average Selling Price	$166.25/m^3 ($26.42/bbl)
Wells Producing at December 1998	1,246
Estimated Industry Expenditures	$57.1 million

More comprehensive information and historical statistics are presented in ***Oil Activity Review***, available from the Branch; the ***1999*** edition is scheduled for July 2000.

Energy Programs and Policy Section

The Section promotes investment in efficient use of energy and encourages greater use of economic alternate energy sources and alternative technologies. The Section provides analytical and policy advice to government on energy issues, develops and produces cartographic and computer-generated marketing materials supporting Branch initiatives, and operates *ENERGY ANSWERS* information centre. Activities and accomplishments include:

Energy Advisory Service: responded to inquiries from public, industry, utilities, and other departments. Technical staff provided impartial, expert advice and distributed publications on energy-related matters ranging from energy efficiency to alternative and renewable energy. Technical experts responded to about 1,500 inquiries. Non-technical staff answered client requests by supplying fact-sheets and booklets. A Website was developed and received 34,494 visits.

Home Energy Saver Workshops: at seven workshops, in different locations and attended by 141 people, homeowners received practical advice on achieving benefits of retrofitting homes to increase energy efficiency. Since these began (1986), 5,807 people have participated in 321 workshops.

Manitoba R-2000 Home Program: aims to increase energy efficiency and environmental sustainability of new housing to specified levels of performance. Since 1994, the Section administers this program for Natural Resources Canada, Manitoba Conservation, Manitoba Hydro, Centra Gas and the Construction Association of Rural Manitoba (CARM). Improvement of the Program continued. A total of 40 homes were enrolled, 1.8% of the single detached home starts (national R-2000 activity was 1%). An R-2000 Provincial Builders Committee was established to foster greater builder input into marketing direction and administration.

R-2000 offered training to industry on energy-efficient, environmentally-responsible design and construction of new housing. Efforts included a two-day Builder Workshop in Winnipeg (13 attended), and one-day Builder Technical Updates in Brandon, Winnipeg and Thompson (29 attended). Participants indicated a high level of satisfaction with content and quality of instructors.

Marketing activities included:

- *Open houses in Swan River, Onanole, Roseau River, and East St. Paul (4,200 attended). At Roseau River, the Section worked with the federal housing agency, CMHC, and a First Nations community, on a Healthy Housing demonstration home, the first all-concrete R-2000 house in Manitoba, with precast walls and cast-in-place floor with radiant hotwater heating,*
- Sponsorship of CARM Information Expo,
- Manitoba Hydro bill enclosure,
- References or feature articles about R-2000 in local and regional newspapers and magazines,
- Co-op magazine and newspaper ads with R-2000 Builders,
- A special segment on `A' Channel's *Breakfast Club*,
- Wide print advertising campaign in spring 2000,
- Major mailout survey of recent new home buyers to assess buying habits,
- First annual Builder Awards presentation.

New Home Workshops: offered on energy-efficient new home construction in all regions; promotion of R-2000 Program is key. Staff provide technical advice on situations where participants want to exceed requirements of the Program. A total of 267 people attended 9 Workshops. Since Workshops began (1993), 1,683 people have attended 80 workshops.

Home Retrofit Booklets: further developed and distributed this widely available (also in French) series, which provide detailed and objective retrofit techniques for the public. The booklets are distributed through lumberyards.

Energy and Environment Calendar: a contest selected artwork to represent Manitoba in the calendar produced by Natural Resources Canada. Entries were submitted by elementary schools; the winner for the 2000 calendar was by Mallory Legge, age 11, of Victor H.L. Wyatt School, Winnipeg. There were 8,000 calendars distributed to schools, libraries and daycare centres.

Plan Winnipeg Review: provided initial input on such topics as energy-efficient transportation opportunities and building and housing options, alternative energy, efficiency in infrastructure planning, and recognition of climate change. The Section's input will continue.

Rehabilitation of Inner-City Housing: staff assist on energy-efficiency aspects with the committee developing the workplan for rehabilitation of inner-city neighbourhoods, a joint venture of three levels of government.

Manitoba Building Code: continued assisting construction industry and building officials to apply new, more stringent energy-efficiency requirements for housing, including developing an illustrated, plain-language guide to Code requirements.

Model National Energy Code for Buildings: promoted voluntary use for commercial, institutional and industrial projects. Released new commercial energy analysis software, *EE4,* developed co-operatively with Canada and utilities to encourage use of the Model Code.

Commercial Building Incentive Program: assisted Natural Resources Canada to increase awareness of this Program which provides incentive for buildings designed to be at least 25% more efficient than the Model National Energy Code.

Minimum Standards for Energy-Using Products: continued with Canada, other provinces, standards organizations, and industry, to co-ordinate development and implementation of performance standards for energy-using products, through participation in Advisory Council on Energy Efficiency.

Fact Sheets: distributed a wide range of publications encouraging efficient energy use, and increased use of economic alternate energy technologies and resources. Most significant demand was for information on natural gas, electricity, photovoltaic systems, wind energy, and solar heating systems. Designed for public use, complex and Manitoba-specific information is presented in an easily-understood format.

Energy in Manitoba: this report illustrates historic and projected production and consumption patterns, containing indicators of progress in energy use efficiency, and of carbon dioxide emissions from consumption. This public document is available on the Web or in our *ENERGY ANSWERS* information centre.

Energy Efficiency and Alternative Energy Service Centre: a market research study is underway to determine effectiveness of an Energy Efficiency Service Centre, funded jointly with Environment Canada. Pele Research and Consulting was contracted to conduct the study to:

- Inventory existing energy-related information, programs and services,
- Survey customer requirements,
- Review other examples of "one window" service delivery, and,
- Recommend options for a "one window" service delivery.

The draft final report will be presented at end of April 2000. With results of the study, Environment Canada proposes to seek funding from the Climate Change Action Fund to construct or renovate a suitable site and to recruit partners. Target operational date for the Centre is January 2002.

Electricity Issues: monitored and provided briefings on Canadian, U.S.A., and European activities in restructuring and deregulation of the electricity industry. The Section is actively participating in, and coordinating, development of Canadian/provincial/territorial response to proposed U.S.A. reliability standards for the industry.

Sustainable Development Energy Strategy: continued development of a new, more focused Strategy. Recognizing significant changes to energy markets (such as deregulation) and environmental imperatives (such as greenhouse gases and climate change) since the Sustainable Development process began, the Branch prepared a policy paper outlining a framework of nine goals; a revised *Applications Document* has been prepared. Staff participated in workshops and planning sessions to develop Sustainability Indicators as required under ***The Sustainable Development Act***.

Climate Change: Canadian First Ministers tasked Ministers of Energy and Environment to develop and implement a climate change policy. Developing a national plan involves 16 Sector Tables, each to provide information on emissions levels, issues, and options for emission reduction. The Branch represents energy interests, working with Sustainable Development Coordination Unit (SDCU), and Manitoba Hydro. Of five Tables in which Manitoba participates, the Branch is involved in four: Electricity, Transportation, Buildings and Housing, and Modeling and Analysis. Further, there is participation with Manitoba Hydro in the Greenhouse Gas Emissions Reduction Trading pilot project, and on Manitoba Intergovernmental Panel on Climate Change, chaired by SDCU.

Manitoba Government Building Initiative: the Branch cooperated with Highways and Government Services to retrofit two government buildings, Woodsworth Building (Winnipeg), completed in April 1997, and Portage Provincial Office Building (Portage la Prairie), completed in April 1998. Monitoring found that annual savings at Woodsworth Building are $56,000, comparable to original estimate. Savings at Portage Provincial Office were less than estimated ($27,000), but the building is more comfortable.

Manitoba Public Housing Initiative: assisted Manitoba Housing Authority (MHA) to develop a pilot project for its Building Energy Management Initiative. Three buildings, Oak Tree Towers (Portage la Prairie), and Villa Heidelberg and Kildonan Horizons (Winnipeg) were examined for energy efficiency. Plans for retrofitting, using a five-year simple payback as the screening criteria, were developed. Staff assisted MHA by conducting energy audits and estimating savings. Retrofit work was completed on all but Kildonan Horizons (a building in Morden was substituted). The Branch will assist MHA in monitoring and to develop a method of evaluating and priorizing its 2,800 buildings.

Crude Oil Revenue Forecast: utilized forecasting tools developed last year to project average monthly and annual prices for Manitoba crude oil, and to project Provincial revenues. These tools were calibrated and examined for their robustness; examination will continue.

Inventory of Manitoba Solution Gas and H_2S: attempts to quantify solution gas and associated H_2S production from oil fields and pools. A method of estimating solution gas-oil-ratios (GOR) was developed. A strong correlation between depth of producing formation and GOR was observed. Using this correlation, average field, pool and battery GOR's were made. By combining GOR estimates with oil production data, solution gas and H_2S production are estimated. Based on available qualitative information, amounts vented, flared and burned as fuel at battery sites were estimated. Potential gas microturbine electric generating sites were identified. Gas production and volumes vented, flared and burned as fuel were compared to data from Saskatchewan and Alberta. Recommendations were made to improve understanding of amount and characteristics of gas produced and how it is handled at battery sites (i.e. how much is flared, vented or burned as fuel).

Ethanol: worked with the former Economic Development Board and others to examine opportunities for increasing ethanol production and market share for fuel ethanol blends. Results and options were presented to the Board; this work is expected to continue.

Y2K: represented the Department on the Provincial Y2K Committee led by Emergency Measures Organization, on Essential Services Sub-Committee. Activity on the issue by oil and gas industry and electricity producers was found to be sufficient; no additional contingency plans were required.

Council of Energy Ministers/Joint Meeting of Ministers of Energy and Environment: provided briefing materials to the Minister. Staff lobbied on behalf of Manitoba Hydro's interests as outlined in reports tabled previously: ***Renewable Hydroelectricity - A Climate Change Opportunity*** and ***Climate Change Opportunities - A Focus For Early Actions*** outlined opportunities that could benefit Manitoba and assist Canada to meet international commitments. In addition to the climate change issue, Manitoba was instrumental in adding examination of electricity trade impacts to the mandate of the Federal/Provincial Reliability Working Group.

Cartographic and Computer Generated Marketing Materials: in addition to support for Section programs, materials are produced for Administration and Geology and Engineering Sections, including:

- Seismic maps,
- Mississippian Erosional surface map,
- Graphic materials supporting a CIM paper,
- Map # 7 updates,
- Pool location map updates,
- Crown Oil and Gas Rights map,
- Pasteups for Designated Field and Pool Orders,
- Slides for the 7th International Horizontal Well Workshop,
- Mission Canyon (MC-1) study,
- Stratigraphic map series - Virden Field area and Daly Field, and,
- Maps and figures for CAPL Prospect Exchange-Calgary,

Municipality Efficiency Project: represented the Department on Steering Committee and Technical Advisory Committee. Lead by the Association of Manitoba Municipalities, this is a practical, results-oriented initiative to improve economic and ecological sustainability of communities. Interested municipalities are provided with tools to increase efficiency, especially in areas of water, wastewater, energy, and equipment. Increase in operational efficiency will reduce costs and emissions of greenhouse gases. Other supporters are Environment Canada, PFRA, Manitoba Intergovernmental Affairs, Manitoba Hydro, and the Community Places Project of Manitoba Culture, Heritage and Tourism.

Energy Efficiency in Commercial Buildings Student Competition 2000: participated with Manitoba Chapter of Energy Management Task Force in sponsoring and organization. The Competition allows students to learn and apply practical energy and water efficiency concepts through hands-on analysis of existing buildings. A total of 32 University of Manitoba students, in 9 teams, completed the competition. Each team was assigned a building and a knowledgeable mentor, and given full rein to assess energy and water consumption, identify opportunities to improve efficiency, and prepare a report with detailed feasibility studies, cost analyses and recommendations as to most cost-effective initiatives. The students competed for cash prizes and awards presented to the top three teams. The Task Force is a nonprofit organization of professionals interested in improving energy and water efficiency of commercial and institutional sectors. Other partners were the University of Manitoba, Manitoba Highways and Government Services, utilities, and other private-sector companies and organizations.

Sustainable Development Innovations Fund Projects: provided the Sustainable Development Coordination Unit with technical review of applications, and administration of funding and technical support for energy-related projects. Current projects administered by the Branch and approved for funding:

- ***Use of Advanced Microturbines for Energy Efficient Odour Control.*** $25,000 was provided to Centra Gas to demonstrate advanced microturbine technology's potential to meet a number of goals including elimination of odours associated with water treatment facilities, simultaneous electrical generation, energy efficient recovery of heat, and reduction of volatile organic compounds and methane (associated with climate change) in water treatment facilities.

  A 75 kW microturbine was installed and monitored at Winnipeg's South End Water Pollution Control Centre. An evaluation report showed that the system can deal with odour control and compares favourably with conventional odour control technology in environmental implications, energy performance, and economics. The report makes other specific recommendations for actions to advance the technology and investigate other potential applications, including landfill gas, biogas from livestock (notably swine), and solution gas from production of crude oil.

- **EcoVillage at the Forks.** The EcoVillage Foundation Inc. proposed to build a 100-125 unit sustainable urban village. Compared to conventional construction, energy use was projected to be reduced by 30%, water consumption by 50%, and greenhouse gas emissions by 75%. Preliminary design work is complete. As significant progress was not made, the proponent was notified that funding would lapse.

Table PET.1

23-2(b) Petroleum and Energy

Expenditures by Sub-appropriation	Actual 1999/00	Estimate 1999/00		Variance Over/(Under)	Expl. No.
	$	FTE	$		
Total Salaries and Employee Benefits	1,454.9	31.00	1,537.5	(82.6)	
Total Other Expenditures	590.9		612.0	(21.1)	

Chapter 21

Amortization of Capital Assets

With the implementation of new accounting standards with respect to capital assets, the department expensed the annual amortization cost of all completed assets based on the useful life of each asset. Assets which were purchased or constructed in 1999/00 were expensed at one-half the annual amortization rate. The amortization expense also included the portion of corporate information technology projects attributable to the department.

Table ACA.2

23-4 Amortization of Capital Assets

Expenditures by Sub-appropriation	**Actual 1999/00**	**Estimate 1999/00**		**Variance Over/(Under)**	**Expl. No.**
	$	**FTE**	**$**		
Total Other Expenditures	47.7		47.7	0.0	

FORMERLY MANITOBA ENVIRONMENT

Chapter 22

Administration and Finance

Minister's Salary

The Minister's Salary provides the Minister with the additional compensation to which an individual appointed to the Executive Council is entitled.

Executive Support

This section is comprised of all support staff in the Office of the Minister and Deputy Minister of Environment, totalling 7.0 staff years.

The purpose of Executive Support is to develop, implement and oversee departmental policies and programs which are designed to attain, over the long term, the goals set out in the Department's role and mission statement, to advise the Minister on matters relating to the Department, to provide overall policy direction for departmental programs, to coordinate departmental communications activites and initiatives and to provide administrative support for the Offices of the Minister and Deputy Minister.

For purposes of this annual report, the structure shown is that which was in place at the beginning of the fiscal year. It does not reflect the changes that occurred as a result of the government's October 5, 1999 reorganization of government departments.

Table ENV.1

31-1(a) Minister's Salary
31-1(b) Executive Support

Expenditures by Sub-appropriation	Actual 1999/00	Estimate 1999/00		Variance Over/(Under)	Expl. No.
	$	FTE	$		
(a) Minister's Salary	26.1	1.00	26.3	(0.2)	
(b) Executive Support	369.3	7.00	371.8	(2.5)	1
Total Salaries	395.4		398.1	(2.7)	
Total Other Expenditures	112.1		76.5	35.6	2

Explanation:

1. Variance is due to a cabinet shuffle and resulting decreased personnel costs in the minister's office.
2. Variance is due to higher than budgetted costs for transportation, advertising and program promotion, and unanticipated costs in connection with the Deputy's involvement with the North Dakota Consensus Council Initiative on Red River Flood.

Financial and Administrative Services

The Branch provides financial, human resource, administrative, computer support, and library services to ensure appropriate utilization of resources and effective delivery of programs, in compliance with policies and procedures.

Financial Services include processing revenue and expenditure in accordance with legislative, Treasury Board and departmental requirements, estimates preparation, accountable advances, expenditure monitoring and reporting, and cashflow forecasting.

Administrative support services include vehicle co-ordination, parking administration, central inventory, office equipment, records management co-ordination and freedom-of-information management.

Computer support services include administration, planning, project management, application planning and operational support, management and co-ordination of external resources, and co-ordination of Desktop Management. These activities serve 170 users, including in Regional offices in 12 locations.

The Alberta government Environmental Management System (EMS) and a proposed implementation plan were evaluated, to commence during the fiscal year 2000-01. EMS will replace several systems Environmental Management Information System (EMIS), Dangerous Goods Integrated Information System (DGIIS), Petroleum Storage Program System (PetStore). Software and systems were tested, evaluated, and upgraded for Y2K compliance, along with due-diligence documentation. Support was provided for the Drinking Water System to export data to Health Canada. *PetStore* was modified to be a shared application and distributed to Branches through the Provincial Data Network.

The human resource function is conducted by an amalgamated unit comprising Environment, Agriculture, and Rural Development, responsible for recruitment and selection, classification, pay administration, labour relations, performance management and related activities. In addition, initiatives such as Continuous Improvement, Development and Training, and Human Resource Planning are supported.

Consolidation of Manitoba Environment, Natural Resources and Petroleum and Energy into Manitoba Conservation resulted in the initiation of an integration process to eliminate duplication, streamline operations and integrate operations.

About 4,800 supplier-related SAP transactions were processed. Documentation respecting Annual Estimates process and Supplementary Information for Legislative Review was prepared. Financial reports were prepared for Manitoba Finance, Treasury Board and Department management. Budget analyses and cash flow reports were prepared and expenditures and revenue monitored.

The Branch administered 27 government vehicles, and office space, office equipment, office furniture, communications, and related requirements.

The Branch processed 690 file-search requests. The requests were received from law and consulting firms and the public sector, concerning environmental information pertinent to property transactions.

Reception services were provided at Winnipeg office and for Environment Canada's Winnipeg office.

The Branch received 24 ***Freedom of Information*** and ***Protection of Privacy Act*** access applications, providing information on:

- Manitoba's Ozone Depleting Substances Program,
- Cross Lake Weir Remedial Control Structure,
- *Manitoba Climate Change Action Plan* prepared for the Manitoba Government in response to the Kyoto Agreement,
- Possible contamination of Whitemouth River,
- Property at Hwy #1 and Hwy #10,
- A Class 1 Waste Disposal Site in R.M. of St Clements,
- Lorette lagoon,
- Landmark,
- Chemical inorganic analysis of drinking water in Neepawa,
- A permit to construct, modify or expand an earthern manure storage facility,
- A property in Transcona,
- Minister's business travel outside of Manitoba,
- Chemical analysis of inorganic elements of drinking water at Cross Lake,
- Expenses incurred due to integration,
- Rivergate Subdivision Sewage Treatment Plant,
- Test results from the Lindane Canola Seed dump site in East St. Paul,
- R.M. of Springfield By-Law #96-27,
- R.M. of Springfield By-Law #98-22, and,
- Schneider Pork Processing Plant in Winnipeg.

The Environment Library/Bibliothèque de l'Environnement serves staff of Manitoba Environment, Environment Canada, Canadian Council of Ministers of the Environment, and the public. Library staff participated in a new system implementation with other Environment Canada libraries. The shared library database, Ceres, will be available on the Internet shortly.

The Library responded to 2,589 requests for information from staff and public, filled 738 interlibrary loan requests, processed 347 orders for books, periodicals, and electronic products, catalogued 1,484 items with a contract cataloguer and an intern hired through the Career Edge program, sent 534 journal tables-of-contents to Regional staff in an awareness service; and distributed 1,656 brochures and information bulletins. The Library operates the main Public ***Environment Act*** Registry, coordinates the Department's publications, and renewed professional memberships for the Department. Public use continued to increase; 834 non-staff persons visited.

Table ENV.2

31-1(c) Financial and Administrative Services

Expenditures by Sub-appropriation	Actual 1999/00	Estimate 1999/00		Variance Over/(Under)	Expl. No.
	$	FTE	$		
Total Salaries and Employee Benefits	668.2	15.00	729.2	(61.0)	
Total Other Expenditures	245.1		316.8	(71.7)	

Chapter 23

Environmental Operations

To maintain a healthy public and natural environment for the use and wellbeing of present and future generations, the Division operates from five regional offices (Brandon, The Pas, Winkler, Steinbach and Winnipeg), and eight regional sub-offices.

The Assistant Deputy Minister of Environmental Operations and staff provide overall management.

Regional Directors and staff deliver:

- Administration of regulations and related approvals, including review of applications and issuance of approvals pursuant to ***The Environment Act*, *The Dangerous Goods Handling and Transportation Act*, *The Contaminated Sites Remediation Act*, *The Ozone Depleting Substances Act*, *The Public Health Act*, *The Non-Smokers Health Protection Act***, and ***The Waste Reduction and Prevention Act***,
- Enforcement, including receipt and analysis of data from licence holders, inspections (routine, spot, compliance, response to complaints, and sampling), and enforcement by ticketing, collecting evidence, initiating prosecutions, and issuing Orders,
- Emergency response, including 24-hour emergency response capability, technical advice, co-ordination of local training, management of clean-up activities and issuing Orders,
- Monitoring, including sample-taking, and co-ordination with other departments, and,
- Community liaison, informing the public, organizing local environmental activities, responding to public inquiries, and identifying local environmental priorities.

Divisional Program Highlights

Domtar Site Cleanup

A major clean-up was completed at a former wood preservation site in Winnipeg. Operating from 1911 to 1976, this site used creosote, petroleum-based creosote solutions and PCP to treat wood.

About 35,000m^3 of highly impacted soil was excavated and placed in a secure containment cell on site. The cell has a double liner with leachate collection and leakage detection capabilities. The rest of the site, where moderately to low impacted soil remains, has been covered with an engineered cap. Over 100,000m^3 of clean material was imported for backfill and cap.

In the final stages, it was discovered that creosote contamination had migrated off-site via a drainage ditch, by about 800m. This contamination was not discovered previously as it was generally more than two metres below surface. Housing near the ditch was a further complication; subsurface investigation revealed contamination on 35 properties.

After an extensive consultation process involving Manitoba Conservation, Manitoba Health, Domtar and their consultants, and the affected homeowners, Domtar excavated and removed approximately 40,000m^3 of soil from residential properties and restored them to their original conditions.

Remedial activities have been completed. The site has been leased to the Fort Whyte Centre and, as Transcona Community Bio-Reserve, will be restored and maintained as a natural area, for outdoor recreation and environmental research in site reclamation.

Inspection of Livestock Production Operations

Until 1994, construction of manure storage did not require a permit. Permits have been required for construction, modification, or expansion of earthen storage structures since 1994 and others (i.e. concrete and steel tanks, dairy molehills) since 1998. A total of 361 permits for manure storage facilities have been issued since 1994, the majority to new, large-scale hog producers.

Livestock production operations with storage facilities under permit are inspected annually. Inspections ensure compliance with permit clauses and that adequate erosion protection is installed on inner surfaces of earthen storage facilities, check for signs of erosion, leakage, construction defects or damage, assess potential environmental effects, and inspect management of mortalities. Livestock production operations not under permit are not subject to annual inspections unless a substantiated complaint has been received.

Staff conduct at least three inspections during construction of new manure storage facilities. These inspections primarily ensure compliance with permit and regulatory requirements and address any unforeseen problems.

Contaminated Sites

The process for managing sites was formalized; **the *Guideline for Environmental Site Investigations in Manitoba*** is now in use by consultants and industry. It informs and directs the acceptable methods and protocols for site investigations where groundwater, surface water, sediments, or soil may be contaminated from past or present use.

About 1800 sites where contamination exceeds Canadian Council of Ministers of the Environment (CCME) 1999 Environmental Quality Guidelines are being tracked. Of seven designated as contaminated sites in 1997, two have been remediated, two are actively being remediated, and three continue under investigation under management plans filed with the Department.

Regional Program Highlights

Northern Region

Environmental Assessments of Tracked Hydrocarbon Impacted Sites and Land Transfer Reviews

About 60 projects required environmental impact assessment. These requests and reports largely came from clients' consulting engineers. For example, many Manitoba Hydro properties required risk-based evaluation compared to provincial standards before remedial actions could begin. These assessments focused on risk to human and environmental health, addressing liability and remediation requirements.

One of the largest projects under review is federal land divestitures in Churchill. This transfer to provincial and local authority involves 19 separate properties, owned by Canada Department of Defence and Transport Canada. The project references 125 separate sites, ranging from minimal impact to large unoccupied, dilapidated, unserviceable buildings. Each site must be assessed individually to determine remedial action before transfer occurs. This project has been ongoing for several years.

Another example are assessments arising in transfer of Thompson Airport to local authority. Since onset of the National Airports Policy, Transport Canada has transferred 92 non-national airports, including Thompson. A total of 10 tenant properties at Thompson Airport required assessment. There were 17 separate environment issues identified and reviewed in the transfer process with Thompson Regional Airport Authority.

A database of 276 tracked sites was developed to ensure management and remediation. This inventory is a readily available reference for dealing with such landuse issues as sales and development. Staff gather and record data on each site to ensure the latest environmentally-significant information is available.

Water Quality – Recreational Lakes Studies

In partnership with cottager associations and Water Quality Branch, staff have been systematically studying specific lakes. A total of 10 studies have been planned from 1997 to 2004, including annual data collection. Also valuable as baseline in future, this data is mainly used to assess impacts of existing developments. To date, general water quality has been very good, and participation and interest by residents in sampling has been excellent.

Extreme Weather Contributes to Environmental Accidents

Several accidents resulted from extreme weather. A remote MTS tower near Churchill blew down, causing a 12,000 litre fuel spill on the tundra, and depriving Churchill of communications for several days. There were four incidents in which large equipment fell through lake ice. As an example, a private contractor lost his complete rig (truck, low bed trailer and two cat tractors) in 100 feet of water. These losses on ice roads, where hazards appear quickly, seem more frequent lately. Staff and other agencies involved with winter roads are discussing accident prevention.

Positive Developments in Mining Sector – HBMS and Birchtree INCO

Hudson Bay Mining and Smelting is proceeding with the 52-month development of 777 Mine, Flin Flon, and re-development of Chisel North Mine, Snow Lake, revitalizing both communities. The 777 project will include a modern tankhouse, centrepiece of Zinc Plant expansion, that will improve overall production efficiencies and environmental working conditions. Installation of an electrostatic precipitator gas handling system will reduce SO_2 emissions by 90%. Air quality has been a concern to residents for years. Major improvements in the community environment are anticipated. Expansion of INCO Birchtree Mine, Thompson, extends the life of INCO by 10 years.

Eastern-Interlake Region

Solid Waste Management

Activity in solid waste management continues, particularly in new proposal assessments, review of existing waste-disposal ground operations, closure of inadequate sites, and working with municipalities to overcome challenges in developing management programs. Prior to the current Regulation (1991), there were 134 active waste disposal grounds. Of these, 68 have been closed and 76 are active, including 10 developed since 1991. There is encouraging movement to transfer stations with 12 active and seven to begin operation next year. One new Class 2 waste disposal ground and nine transfer stations were constructed in this fiscal year.

Investigation of Gastro-intestinal Illness Outbreak, Gull Harbour

Gull Harbour Resort advised Public Health Inspectors of about 12 cases of suspected food-borne illness following receptions. Investigation, with Manitoba Health, included interviewing affected persons and Resort staff, inspecting and sampling food-handling facilities, and reviewing operating practises and conditions. Initial results indicated that more than 100 persons had such symptoms as nausea, fever, chills and vomiting. The Resort closed voluntarily for about three weeks and, following a thorough cleaning and disinfection of the entire facility, re-opened. Investigation revealed the cause was a Norwalk-like virus which, it is suspected, was introduced by ill staff or guests, spreading the virus to others.

A second outbreak affected about 20 of a group of 120 spending the weekend. This was also caused by a Norwalk-like virus, apparently brought by guests who spread it among their group through contact. The second outbreak appears to have been an unfortunate coincidence for the Resort. There have been no other reports of illness among staff or guests.

Park-West Region

Air Quality, Tilston Area

An expanded air quality program was implemented in Tilston area. Two trailers, set up north of Tilston where complaints of air quality problems had been received, continuously measure environmental levels of sulphur dioxide and hydrogen sulphide. Data is electronically accessed daily by staff in Brandon and Winnipeg. Volatile organic compounds samples are also taken periodically.

A Community Advisory Group was established to benefit from local knowledge, comprising the Reeve of the R.M. of Albert, residents, Tundra Oil and Gas, Manitoba Conservation, Manitoba Agriculture and Manitoba Health. Eight meetings have been held.

Louisiana Pacific Canada Ltd.

The Licence for Louisiana-Pacific was transferred to the Region for enforcement. Staff worked with the company on management of bark, flake and yard waste. The company has proposed to install an incinerator in 2000 to resolve the problem of excess yard waste. A wet burner is proposed for future installation.

Maple Leaf Meats Inc.

Maple Leaf Meats began operation in Brandon, for which 2 Licences were issued. One Licence was issued to Maple Leaf for commissioning and operation of hog processing. The second Licence is to City of Brandon for commissioning the wastewater treatment facility.

A committee comprising Maple Leaf Meats, City of Brandon, and Manitoba Conservation meet biweekly to discuss issues arising in operation of the plant and the water treatment system. This has succeeded in resolving issues as they arise.

South-Central Region

Rock Lake – R.M. of Roblin Private Sewage Disposal

The R.M. of Roblin was faced with non-compliant domestic wastewater disposal. Council is working with the Department to develop a strategy, with the cottage association and local resort owner, to bring private sewage disposal into compliance. This strategy includes information gathering and sharing, negotiating an acceptable timeframe for all stakeholders to achieve compliance, and full communication. Close work with stakeholders continues, including participation in annual cottager association meetings.

Successful Remediation of Hydrocarbon Impacted Soils – Winkler

WBS Construction voluntarily undertook remediation of two sites in downtown Winkler. These former bulk fuel sites had remained vacant for several years due to severe impact by hydrocarbons. Over 3,830m^3 of soil were excavated, treated to CCME guidelines at the Class 1 regional landfill outside Winkler, and used there as cover material. Residential buildings were constructed on the properties.

Winnipeg Region

Construction and Demolition Waste

Improper disposal of construction and demolition waste continues to be addressed. In many instances, these waste materials originate in the City of Winnipeg, although cases involving disposal of wastes from rebuilding after the 1997 flood that continue. Use of such inert materials as concrete and masonry as fill is allowed, but other construction and demolition waste must go to a permitted disposal facility. Dumping elsewhere violates the ***Litter Regulation*** or the ***Waste Disposal Ground Regulation***. Officers responded to 19 incidents of alleged improper disposal, most of which were rectified after the responsible party was contacted. One Director's Order and three written warnings were issued and one charge was laid.

Wherever possible, segregation and recovery of demolition debris is encouraged, but, in many cases, this is uneconomical. Staff are participating in development of an updated Guideline on proper disposal of construction and demolition waste.

Operating Statistics:

ACTIVITY	Number of Inspections	Complaints Responded To
The Public Health Act		
Food Service Establishments	3935	438
Temporary/Seasonal Food Service	640	7
Retail Food Stores	674	152
Mobile Food Units	117	2
Food Processors	450	53
Uninspected Meat Processors	72	4
Public Water Supply	376	43

ACTIVITY	Number of Inspections	Complaints Responded To
Swimming Facilities	679	34
Industrial and Construction Camps	18	3
Recreational Camps	50	3
Public Accommodation	140	19
Care Facilities	416	19
Total	7567	777

The Environment Act

Waste Disposal Grounds	681	146
Livestock Production Operations	1142	119
Municipal Wastewater Facilities	367	27
Scrap Processors and Auto Wrecking	14	5
Agricultural Operations	13	2
Mining Operations	36	4
Forestry Operations	50	15
Manufacturing and Industrial Plants	210	73
Recreational Developments	7	1
Incinerators	34	4
Water Development/Other EA Licences	239	63
Total	2793	459

The Dangerous Goods Handling and Transportation Act

Petroleum Storage Facilities	836	25
Pesticide Storage and Container Facilities	161	29
PCB Storage Facilities	21	
Anhydrous Ammonia	95	
Hazardous Wastes Sites	284	65
Dangerous Goods Handling and Transportation	65	4
Contaminated Sites	515	21
Total	1977	144

Request/Response Oriented Programs

Subdivision, Landsplits, Planning Schemes and Development Plans	783	131
Litter	878	681
Campgrounds	22	1
Dwellings & Buildings	1090	819
Private Water Supplies	320	33
Insanitary Conditions	177	146
Communicable Disease Investigations	101	65
Private Sewage Disposal	886	153
Other (Crop Residue, Ozone, WRAP, NSHPA)	505	191
Total	4762	2220
Grand Total	17099	3521

Training and Development

Key training included Manitoba Environment Training Seminar (METS), Canadian Institute of Public Health Inspectors (CIPHI) Seminar, Manitoba Water and Wastewater School and Seminar, Manitoba Emergency Management Organization training sessions on Emergency Management and Emergency Public Information and Emergency Site Management at Arnprior, Ontario.

Highlight of the year was the 4th Annual METS in Winnipeg, attended by 129 staff. Presentations included The Challenges of Integration, Association of Manitoba Municipalities, Devils Lake, Dealing with the Media, Pollution Prevention Update, Utilizing GIS/GPS, Technology for the Aerial Application of Pesticides, Air Quality Monitory at Tilston, Drinking Water Issues Update and The Medical Officer of Health and the Environment.

Workshops covered such topics as Electromagnetic Surveys in Waste Disposal Ground Site Selection, Swimming Pool Design Criteria and Compliance Issues, How to Recognize Clandestine Drug Laboratories, Alberta Environment Computer System, Environmental Emergency Response Team Update, Departmental Data Sharing, Livestock Program Update, and Global Positioning System-Real Time Correction.

A total of 12 Environment Officers attended the one-week Canadian Law Enforcement Investigators Training Course at RCMP Depot, Regina. Topics covered included communication, information-gathering, interviewing techniques, court testimony, witness statements, and court briefs. All attendees gave high marks to the instructors, course material, facilities and accommodations.

Enforcement

The Department's enforcement policy and procedure provides a consistent approach with emphasis on ensuring compliance with legislation. In addition to the summary, below, a more detailed report of the Department's enforcement activities can be found in the Public Registries located throughout the Province and on the Department's homepage at www.gov.mb.ca/env.

Enforcement Statistics

Legislation	Charges Laid	Convictions	Pending	Formal Warnings Issued	Director/ EO/MOH Orders Issued	Fines Imposed
The Dangerous Goods Handling and Transportation Act	123	120	3	26	12	$ 28,207
The Environment Act	63	55	8	213	36	$ 28,547
The Non-Smokers Health Protection Act				1		
The Contaminated Sites Remediation Act					1	
The Ozone Depleting Substances Act	1	1		2		$ 294
The Public Health Act	17	14	3	90	21	$ 4,189
Municipal By-Laws	1	1		23		$ 150
TOTAL	**205**	**191**	**14**	**355**	**71**	**$ 61,387**

Environmental Accidents

Total number of calls received	401
Total number of accidents reported	289

Breakdown by accident type:

Transport-related	55
Spills during product handling	50
Equipment failure	104
Miscellaneous	80

Breakdown by dangerous goods classification (where applicable):

Class 1 (Explosives)	2
Class 2 (Compressed Gases)	34
Class 3 (Flammable Liquids)	111
Class 4 (Flammable Solids)	1
Class 5 (Oxidizers and Organic Peroxides)	1
Class 6.1 (Poisonous Substances)	9
Class 6.2 (Infectious Substances)	0
Class 7 (Radioactive Materials)	1
Class 8 (Corrosive Substances)	9
Class 9 (Miscellaneous Substances)	15

Table ENV.3

31-2(a) Environmental Operations

Expenditures by Sub-appropriation	Actual 1999/00	Estimate 1999/00		Variance Over/(Under)	Expl. No.
	$	FTE	$		
Total Salaries and Employee Benefits	4,774.7	93.50	5,036.9	(262.2)	
Total Other Expenditures	1,266.1		1,353.9	(87.8)	

Chapter 24

Environmental Management

Environmental Approvals Branch

To ensure that development maintains sustainable environmental quality, the Branch:

- Administers development approval requirements of ***The Environment Act*, *The Dangerous Goods Handling and Transportation Act***, and ***The Public Health Act***,
- Controls municipal, industrial and hazardous waste sources of pollutants,
- Ensures safe drinking water,
- Minimizes environmental impact of development proposals, and,
- Minimizes adverse effects to environment and health from pesticide use.
- Three sections deliver the branch programs.

Municipal, Industrial, and Hazardous Waste Approvals Section

To control municipal, industrial and hazardous waste sources of pollutants, and ensure safe drinking water, the Section:

- Gathers information on environmental implications of proposed developments,
- Recommends conditions to Director and Minister for developing Environment Act Licences;
- Provides advice on technical aspects of pollutant treatment and control strategies,
- Evaluates proposed water and wastewater works for public health concerns in preparation for approval by Minister of Health,
- Reviews minesite rehabilitation schemes,
- Provides technical assistance to municipal, provincial and federal governments on water treatment and distribution, wastewater collection, treatment and disposal, and air emission control,
- Recommends licensing conditions for constructing, altering and operating waste management facilities that handle dangerous goods,
- Represents the Department at public meetings or hearings,
- Provides technical support on all matters relating to dangerous goods and hazardous waste,
- Reviews and generates Directors Orders for on-site management of hazardous waste,
- Promotes on-site management of hazardous waste at industrial facilities,
- Provides environmental support to other Departments,
- Liaises with industry groups to coordinate development of comprehensive systems to safely dispose of hazardous waste,
- Responds to enquiries and complaints, and,
- Develops guidelines for storing and managing hazardous waste.

Activities

Activity	Number
Environment Act	
Project proposals received	33
Project proposals processed	33
Project proposals refused	2
Minor alterations received	22
Minor alterations processed	22
Revision requests to Licences approved	8
Pre-licencing activities processed	32
Enforcement activities	22
Public meetings attended	11
Public hearings attended	1
Dangerous Goods Handling and Transportation Act	
Proposals received	5
Development proposals licenced	5
Minor alterations requests received	6
Minor alterations processed	2
Pre-licencing activities	3
Site visits	3
Enforcement procedures conducted	1
Public meetings attended	1
Public Health Act	
Proposals received for Certificates	34
Proposals processed for Certificates	37
Proposals reviewed	7

Major Activities

Maple Leaf Meats, Brandon: An Operating Licence was issued. The wastewater treatment facility servicing the plant, operated by City of Brandon, received a commissioning Licence.

City of Brandon Wastewater Treatment Plant: The Plant was upgraded. A revised Environment Act Licence was issued, authorizing construction of facilities to accommodate direct discharge to Assiniboine River.

Town of Roblin: The Town received a Stage 2 License authorizing operation of an engineered wetland.

City of Winnipeg: The City received a Letter of Approval authorizing construction and operation of an ultraviolet light disinfection system for effluent from South End Water Pollution Control Centre.

Environmental Land Use Approvals Section

To ensure that potential environmental impacts are identified and addressed in projects which affect land and water use, the Section:

- Co-ordinates environmental assessment and licensing of proposed developments for recreation, transportation and transmission, forest management, and water development and control,
- Co-ordinates environmental review of proposed municipal Development Plans and Zoning By-laws and amendments, and treaty land entitlements,
- Co-ordinates environmental review of Canada/Manitoba Infrastructure Works projects,
- Participates in development and revision of legislation, policies, and procedures,
- Participates in and provides technical advice for project and program planning activities, including screening of Manitoba Highways and Government Services projects,
- Participates on interdepartmental committees and task forces, and review and approval by letter, of projects with environmental impacts which are not included in *Classes of Development Regulation*,
- Participates on Pine Falls Paper Company and Tolko Manitoba Forest Management stakeholder advisory committees,
- Provides management services for other initiatives, including Manitoba Model Forest and Manitoba Forestry Association,
- Participates in inspection and enforcement for developments in planning, construction, and operating stages,
- Responds to complaints and enquiries, and,
- Represents the Department at hearings and public meetings.

Activities

Activity	Number
Municipal Development Plan and Zoning By-law reviews	71
Highways pre-planning reviews	20
Infrastructure project reviews/Canada/Man. Partnership Program Review	5
Hydro Low Voltage Reviews	8
Other Reviews - Licence not required, but construction conditions provided	41
Development site inspections, monitoring and enforcement	81
Environment Act	
Project proposals received	23
Project proposals licenced	21

Major Activities

Aquifer Management: The Section participated in the multi-disciplinary technical advisory group that compiled background information for development of Oak Lake Aquifer management plan. The process involved technical expertise from government, and stakeholder input from aquifer users and other residents. Support continued for Winkler Aquifer Management Plan implementation.

Proposed Hydro Projects: Manitoba Hydro is considering several developments, including three northern generating stations and a high-voltage transmission line east of Lake Winnipeg. Other smaller developments, including conversion and expansion of generating stations in the south, and a high voltage transmission line from the southwest to North Dakota, are likely. The Section met periodically with Manitoba Hydro and Canadian Environmental Assessment Agency (CEAA) on these proposals. A pre-proposal TAC meeting was held on the southwest transmission line. Formal proposals are anticipated in 2000-01.

Churchill Harbour Dredging Project: The Section co-ordinated provincial environmental review. Information was received from the federal authority under CEAA, and comments provided. Approval for the project was received from Canada.

Manitoba Model Forest: Involvement continued, with staff on Board of Directors and Executive Committee. Staff was actively involved in development of 1999-00 Work Plan, attending meetings of Directors, Executive Committee, and Advisory Group, and participating and assisting with planning of meetings, research workshops and conferences. Liaison and planning activities continued with the twinned Monarch Butterfly Model Forest in Mexico.

Federal Property Transfers: Continued review co-ordination of federal environmental assessments for transfer of federal facilities and properties to municipal and private authorities. Staff are assisting user groups and municipalities with environmental issues in acquisition of abandoned railway lines.

Canada-Manitoba Infrastructure Program: The Section continued co-ordinating acquisition of information needed for federal and provincial environmental screening of Infrastructure Works projects. The program terminated at year-end.

Pine Falls Paper Company Sustainable Forest Management Plan 2001-10: Review co-ordination continued. The Company (PFPC) submitted an Environment Act Proposal Form addressing their forthcoming Sustainable Forest Management Plan, 2001-10 and Environmental Impact Statement (EIS). As the Plan and EIS were still in preparation, an additional one-year extension to PFPC's Environment Act Licence was granted to address activities for 2000, as detailed in PFPC's Two-year Plan. Due to anticipated landuse planning for East Side of Lake Winnipeg, interim approvals options are being considered. Meetings continue with PFPC on approvals options.

Pesticide/Fertilizer Approvals Section

To minimize adverse effects to health and the environment from pesticides and fertilizers, the Section:

- Provides professional expertise to the Department, government, public, and industry on pesticide/fertilizer use, storage, disposal, and control,
- Manages a pesticide permit system to address public concerns/objections,
- Recommends conditions to the Director and Minister for Environment Act Licences,
- Assists in periodic revision of the National Standard for Pesticide Education, Training, and Certification in Canada for pesticide applicators and vendors,

- Provides technical expertise and advice to the Association for a Clean Rural Development (ACRE) on container disposal and other environmental concerns,
- Supplies expertise to the Federal Provincial Territorial Committee on Pest Management and Pesticides through annual national meetings and telephone conferences,
- Serves on the Board of Directors and provides information to the Prairie Provinces Certified Crop Advisor program,
- Serves on the Board of Directors and provides advice to the Industrial Vegetation Management Association, and,
- Responds to complaints and enquiries from the public respecting pesticide/fertilizer use.

Activities	**Number**
Environment Act:	
Pesticide Use Permits Issued	225
Post Seasonal Reports received/compiled	220
Project proposals received	13
Project proposals processed	13
Minor alterations received	2
Minor alterations processed	2
Public complaints investigated	26
Inspections undertaken	148
Public Health Act:	
Fumigation Permits issued	3

Major Activities

Pesticide Permits: Review and approval of applications for pesticide use continued. Government departments and municipalities require a Pesticide Use Permit annually.

Crop Protection Warehouses/Fertilizer Developments: Review of applications to upgrade agricultural chemical storage facilities to meet new industry standards continued. All facilities are required to meet stringent requirements in order to receive chemical products.

Pesticide Regulations: Manitoba co-sponsored and co-chaired the third meeting of the Federal Provincial Territorial Committee on Pest Management and Pesticides, in Winnipeg. The Committee brings together governments engaged in pesticide regulation, use, and management, to exchange information and better coordinate pest management issues. The Committee is also a valuable vehicle for in-depth technical and strategic discussion of current issues.

Pollution Prevention

The role of the Pollution Prevention Branch is to promote a shift in Manitoba's approach to environmental protection from control and remediation to prevention. The Branch manages The Waste Reduction and Prevention and Ozone Depleting Substances Acts, and takes the lead in promoting the application of practices that avoid the creation of waste and pollutants at source.

The Branch has eight staff.

The Branch undertakes activities in three program areas:
1) Waste Reduction and Prevention Programs;
2) Pollution Prevention; and,
3) Partnerships.

Waste Reduction and Prevention Programs

The Pollution Prevention Branch is responsible for carrying out activities to achieve the Province's commitment of reducing solid waste going to waste disposal grounds. In 1999/00 significant progress continued to be made in building sustainable alternatives to waste disposal. These include the following:

- ✓ The stewardship program for used oil, filters and containers, completed its second year of operation with strong results;
- ✓ Continued expansion of established municipal recycling programs;
- ✓ Renewed Business Plans for the Manitoba Product Stewardship Corporation and Tire Stewardship Board were evaluated and approved in principle; and,
- ✓ A stakeholder process for developing a sustainable program for the management of household hazardous waste in Manitoba resulted in recommendations to the Minister.

Since The Waste Reduction and Prevention (WRAP) Act was adopted in 1990, there has been a substantial increase in the level of recycling pursued in Manitoba. Cost effective working models have been established that demonstrate how "producer responsibility" can be put into action to solve a problem confronting all jurisdictions and shift the costs and responsibility to industry and consumers from local government and taxpayers.

A national survey undertaken to monitor progress in the waste minimization effort indicates that in 1998, Manitobans disposed of 850 kilograms of waste per capita at the 314 waste disposal grounds in the province. This represents a decrease of 16% from 1988 levels.

In 1999/00, the Branch continued to measure and report on progress made toward achieving the national goal of attaining the sustainability of our waste management system and greater resource conservation by:
(a) reducing the volume of waste generated and disposed;
(b) separating hazardous from non-hazardous waste; and,
(c) improving waste disposal facilities in the province.

Used Oil

The *Used Oil, Oil Filters and Containers Stewardship Regulation* makes it illegal for a company to sell lubricating oil products unless it is registered and belongs to the province-wide stewardship program operated by the Manitoba Association for Resource Recovery Corporation (MARCC). In 1999, Manitobans purchased 26.5 million litres of oil and 1.5 million oil filters, and generated one million kilograms of oil container waste. Of these amounts, MARCC recovered 11.5 million litres of used oil, 1.25 million oil filters and 90,000 kilograms of oil container waste. MARRC's activities have been significant, substantially increasing the recovery of lubricants in Manitoba.

MARRC currently has 107 companies with membership in the Association. Compliance audits undertaken on MARRC's behalf indicate the Association has achieved a "level playing field". As part of their membership agreement, lubricant stewards must pay MARRC Environmental Handling Charges (EHC) based on product sales in Manitoba. There were 28 Eco-Centres in partnership with municipal governments and four privately operated depots in Manitoba by the end of 1999. Although there are variations in the level of service throughout the province, MARRC has until the fall of 2000 to complete the establishment of its collection network. The Used Oil Management Committee conducted a stakeholder review of the *Regulation* and MARCC in the Fall of 1999.

Multi-Material Recycling

The Manitoba Product Stewardship Corporation (MPSC) is an 'arms-length' non-profit statutory corporation funded by a distributor paid two-cent per beverage container levy established by provincial regulation. The Corporation has ensured that over 95% of Manitoba's population (160 municipalities) have access to comprehensive recycling services. The MPSC, reporting for Fiscal Year 1998/99, collected $6.5 million through the beverage container levy; paid out $4.6 million in Municipal Recycling Support payments; and, recovered 35,000 metric Tonnes (39%) of a possible 87,000 metric Tonnes of eligible material. While progress to date has been encouraging, by-material and per capita recovery rates indicate that much of the material presently being sent to landfill could be recovered. Reported annual results of the Manitoba Product Stewardship Program are summarized below:

By-material recovery rates (1998)

Eligible Material	Total Tonnes Recovered	Measured Generation (Tonnes)	Recovery Rate
Newspapers, Flyers & Telephone Directories	19,260	34,313	56%
Glass Containers	4,730	12,703	37%
Magazines	2,373	5,749	41%
Boxboard	1,716	8,558	20%
Residential Corrugated Cardboard	1,522	11,022	14%
Steel Cans	1,339	4,431	30%
PET #1 Plastic Containers	875	2,443	36%
HDPE #2 Plastic Containers	818	3,661	22%
Aluminum Cans	512	2,086	25%
Gable Top Cartons	387	1,498	26%
Aseptic Containers	77	419	18%
Total	**33,609**	**86,883**	**39%**

Regional per capita recovery rates (kilograms per person)

Region	1998 Average	1999 Average
North/Northwest	21	23
Central West	31	30
South West	24	26
South Central	34	34
South East	32	40
Winnipeg Region	42	42
Interlake	24	35

Tire Recycling

The Tire Stewardship Board's Scrap Tire Recycling Program was established by government regulation on April 1, 1995, to establish and maintain a scrap tire-recycling program in Manitoba. The Tire Stewardship Board is funded by a $2.80 plus 7% PST levy ($3.00) on all new tires sold for use on licensed vehicles in Manitoba. As of December 31st, 1999, the Board has paid processors over $9 million and municipalities over $600,000 to collect and recycle over 5 million PTE's (passenger tire equivalents). There are virtually no stockpiles of tires left in Manitoba. The program is now recycling one tire for every tire sold in the province and is considered one of the most successful programs of its kind in North America.

Regional Waste Management

The Branch continues to pursue the development of regional waste management systems in the province. Ten regional management systems for solid waste, involving three or more partners, were operating in 1999/00. Over 50 waste transfer stations have been established, replacing local waste disposal grounds, while an additional eight regional waste management partnerships are in the planning stages.

To further encourage the establishment of regional integrated waste management systems, the Pollution Prevention Branch coordinated the activities of the Regional Waste Management Task Force (RWMTF). The Task Force submitted its report "A Regional Solid Waste Management Action Plan and Recommendations" to the Minister in January 2000. The report proposes a vision for a province-wide solid waste management system to minimize risk to human health and the environment and support for continued growth of the Manitoba economy.

In 1999/00, the Branch continued to pursue additional waste management policy initiatives. Diversion of organic wastes through composting, improved construction and demolition waste management practices and the development of waste management facility operating guidelines have been identified as areas in need of further development.

Household Hazardous Waste and Special Wastes (HHW)

It is estimated that in 1999/00 15% of the estimated 2,000 Tonnes of household hazardous waste and special wastes generated in Manitoba annually was recovered. The Household Hazardous Waste Management Committee (HHWMC), a stakeholder committee of municipal governments, industry and citizen group representatives, determined a need for a program to reduce the generation of HHW.

In 1999/00, the Branch continued to pursue the diversion of HHW from landfill and the ecosystem by improving co-ordinated provincial diversion efforts. Branch personnel are working closely with the HHWM Committee and stakeholder process to obtain consensus on a "shared responsibility" program by the Fall of 2000.

Capital Region Waste Activities

Capital Region waste activities are closely monitored by the Pollution Prevention Branch. In 1999/00, Branch personnel facilitated the preparation of a Draft Memorandum of Understanding for a proposed Capital Region Solid Waste Management Alliance. The purpose of the MOU and Alliance is to establish a forum for demonstrating the benefits of planning, developing and implementing integrated solid waste management activities within the Capital Region. The concepts and principles within the MOU have the endorsement of Capital Region Mayors and Reeves, including the City of Winnipeg.

Pollution Prevention

The Pollution Prevention Branch promotes pollution prevention as the environmental management strategy of choice in partnership with the Manitoba Division of the Alliance of Manufacturers and Exporters Canada (AMEC) and Environment Canada. In 1999/00 the Branch assisted the Manitoba Green Printing Project, comprised of 19 member companies, which participate in a variety of P2 activities such as the Manitoba Green Procurement Network's print shop audits. A Manitoba Pollution Prevention Guide for Printers was developed. The Manitoba Metal Finishing Project, which promotes the goals of the National Toxics Reduction Initiative, contacted 38 firms and conducted 10 plant visits. The Wood Finishers in Manitoba initiated a sector-wide approach to P2 opportunities and agreed to hire a project coordinator to provide technical support to member companies. The Auto Body / Auto Repair sector also initiated a sector-wide approach to P2 opportunities, and have a project coordinator to provide technical support to member companies. The Manitoba Golf Superintendents Association distributed an Environmental Self-Assessment Checklist in 1999 to ensure sound environmental practices are followed at Manitoba Golf courses.

In addition to its work with AMEC, the Branch continued to provide on-site assistance to other businesses and industry associations in 1999/00. Branch personnel engaged in voluntary P2 partnerships with the Manitoba Heavy Construction Association, Chambers of Commerce and the Prairie Grain Elevator Association.

Partnerships

The Pollution Prevention Branch undertakes specific activities to promote and support the pursuit of partnerships between Manitoba Environment and its clients. In addition to preparing resources and documenting case studies, Branch personnel coordinated the preparation of Departmental issues updates to contribute to strengthened communication efforts with client associations and departmental personnel. As well, Branch personnel have maintained responsibility for pursuing several specific partnerships as follows:

Ozone Depleting Substances

The Manitoba Ozone Protection Industry Association (MOPIA) and *The Ozone Depleting Substances Act and Regulation* were established by the Province to restrict the use of ozone depleting substances (ODS) and protect the stratospheric ozone layer. Stratospheric ozone levels are near their lowest point since measurements began. By working with MOPIA, the Province's goal is to reduce and eventually eliminate the release of ODS into the atmosphere. In 1999/00, Manitoba amended the ODS Act to prevent, reduce and eliminate the release of ozone depleting substances into the atmosphere; and any harm or injury that could be caused by substances or products that are made to be used, or are used, in place of ozone depleting substances.

Environmental Youth Corps

The Branch provided management and administrative support for the Environmental Youth Corps program which awarded grants totaling more than $133,387 for 67 projects involving 4,344 youths aged 6 through 24. In 1999/00, regional committees considered 94 grant applications for funding.

Coordination of Funding Proposals

The Branch continued liaison with the Sustainable Development Innovations Fund (SDIF) and various federal and provincial departments concerning applications to relevant environmental and youth funding programs, as well as coordinating the review of 96 SDIF applications and the administration of 10 approved projects.

Water Efficiency

In 1999/00, through partnerships with other governments, organizations, institutions and provincial agencies, the Branch led or participated in several effective projects that included energy, water and equipment monitoring, audits, retrofits, re-use, education and public awareness. For example, two water efficiency pilots were highly successful:

- Manitoba Housing resulted in 30% reduction in water use, a seven month payback and ongoing yearly savings of $8,000 per building; and,
- St. Boniface Hospital water re-use project resulted in a yearly savings of $70,000 and ten million gallons of water with a payback of less than nine months.

Environmental Quality Standards

Water Quality Management Section

To assist in protecting and rehabilitating aquatic ecosystems through application of principles and policies of sustainable development and innovative management of risks, the Section:

- Operates an ambient monitoring network on major streams and lakes, including Shoal Lake, other municipal water supplies, and recreational beaches, assisted by volunteers, organizations such as Conservation Districts, and Region staff,
- Undertakes issue-based, site-specific studies, usually by intensive sampling over a short period. Studies assess point and non-point source impacts arising from agriculture, mining, forestry, municipal discharges, and others,
- Co-operates with industry, government, and others to protect water quality from impacts related to agricultural diversification,
- Supports and participates in scientific studies to better understand impacts of human disturbance on ecosystem structure and function,
- Develops and recommends guidelines and objectives to protect water quality,
- Provides technical and scientific support to the Department, government agencies, Clean Environment Commission, and others,
- Co-operates with neighbouring jurisdictions to protect water quality from upstream developments, including participating in International Joint Commission, Prairie Provinces Water Board, and other multi-jurisdictional task forces and committees,
- Addresses non-point source pollution problems through partnerships with volunteers, municipalities, and others,
- Educates volunteers and local citizen groups to foster greater awareness and empower local stewardship. Activities include presentations, short non-technical articles for newsletters appropriate to the audience, and comprehensive widely-distributed documents such as ***Manitoba Clean Water Guide***,
- Reviews and comments on proposals under ***The Environment Act*** and ***The Dangerous Goods Handling and Transportation Act***,
- Provides leadership in many areas of aquatic ecosystem protection including participation in local, provincial, regional, national, and international committees to address specific issues and develop coordinated actions,

- Administers the ***Canada-Manitoba Water Quality Monitoring Agreement***,
- Develops and implements co-operative, proactive strategies to prevent invasion by zebra mussels and other non-indigenous species,
- Contributes to State of Environment reporting, including operation of ambient monitoring sites in several ecozones, database maintenance, and incorporation of community- and ecosystem-level monitoring and reporting tools to provide information on sustainability indicators,
- Manages acquisition of on-going, high quality laboratory analytical services, and,
- Manages water quality data in a secure, user-friendly system that meets complex, on-going needs of the Section, Department, and clients and partners.

Activities

Studies and Assessments Related to Expansion of Livestock Industry

These focus on better understanding impacts of waste disposal, holding areas, and unrestricted livestock access to waterways.

Studies and Assessments Related to Expansion of Crop Production

Aspects of agricultural diversification being studied include irrigation, food processing, cropping practices, and pesticide use. Focus is placed on better understanding such issues and working with governments and industry to modify practices where necessary.

Volunteer, Community-Based Activities

Many issues are addressed by developing informal partnerships with, for example, cottage-owner associations, lake and stream stewardship groups, Conservation Districts, municipalities, and other local authorities. Partnerships collect water quality information and develop cooperative, basin-wide approaches to maintaining and rehabilitating water quality.

Monitoring Ambient Water Quality to Measure Progress Towards Sustainability

The Section operates, at various sampling frequencies, between 40 and 50 long-term monitoring sites. Samples are analyzed for a wide range of materials including bacteria, general chemistry, plant nutrients, major ions, trace elements, and pesticides. Many sites located on smaller streams in south and central areas have been sampled for aquatic invertebrate communities to better assess environmental health. This information is used to determine assimilative capacity, impacts from major discharges, water quality improvement and deterioration over time, and an overview for State of Environment reporting.

Work continues through the Canadian Council of Ministers of the Environment to develop a national water quality index. Other sustainability indices to be assessed and developed include an index of biotic integrity.

Monitoring is done on Shoal Lake, the source of Winnipeg's drinking water. During the summer, between 40 and 50 beaches are monitored, mainly for fecal coliform bacteria.

Water Quality Guidelines, Objectives, and Standards

The ***Manitoba Surface Water Quality Objectives***, last published in 1988, is being reviewed to ensure that objectives reflect scientific knowledge and that implementation procedures are clearly documented. The revised document provides the mechanism to harmonize water quality objectives with Canadian Council of Ministers of the Environment (CCME) guidelines and with standards that may be developed under the recently-signed CCME National Accord on Environmental Harmonization. Next year, the proposed revisions will undergo wide public review.

Nutrient-Related Issues

A major issue in prairie and boreal plain ecozones is enrichment of waterbodies by nutrients such as phosphorus and nitrogen. Emphasis will be placed on developing a comprehensive management strategy to deal with artificial enrichment of prairie streams. This will involve development of a more appropriate quality objective for phosphorus for prairie streams and Lake Winnipeg, identifying major point and non-point sources, analyzing trends to assist identifying priority streams for remedial action, and undertaking consultations should nutrient reductions be required.

Transboundary Issues

Located in the lower part of the Hudson Bay drainage basin, over 70% of our surface water originates in other jurisdictions. Work will continue with the Prairie Provinces Water Board's Committee on Water Quality, Souris River Bilateral Water Quality Agreement Task Group, International Red River Pollution Board, and Shoal Lake Tripartite Agreement Working Group. Additional focus will be placed on tracking and responding to North Dakota and Minnesota water projects, such as Northwest Area Water Supply Project, Devils Lake emergency outlet, and Dakota Water Resources Bill/revised Garrison legislation. Considerable effort will continue on the International Red River Basin Task Force.

The Section lead Manitoba's delegation in developing a watershed management plan for Shoal Lake basin. Other major participants include the five First Nations on Shoal Lake, Canada, and Ontario.

Groundwater Quality

There is an increased need to acquire expertise in groundwater hydrogeology and hydrogeochemistry to meet the Department's needs. These include updating pollution hazard area maps, providing expert advice on projects potentially affecting groundwater, participating in water quality studies to better understand impacts from agricultural diversification (such as manure management, irrigation, cropping practices), and a groundwater quality protection strategy, including monitoring and assessment needs.

Responding to Current Corporate Challenges

The Section will continue to work to meet corporate challenges. An active role will be played in the following areas:

- Upgrade water quality data management system to meet, in a cost-effective manner, data management needs,

- Co-operate with others in Manitoba Conservation, Environment Canada, and CCME to ensure a healthy corporate culture,
- Improve management of agreements for provision of complex, high quality analytical data and services, and,
- Ensure staff have sufficient training and development to meet the complex current and future technical, scientific, and management needs.

Activity	Number
Water Quality Monitoring and Studies	
Surface monitoring sites routinely operated for water chemistry	39
Surface monitoring sites routinely operated for indicators of biological health	22
Biomonitoring sites	1
Coordination of volunteer-operated monitoring sites	124
Coordination of volunteer-operated sampling of raw water supplies for toxic algae	1
Issue-based, site-specific studies	24
Coordination of monitoring at recreational beaches	45
Reports, Presentations, Scientific Reviews, Inquiries, etc.	
Preparation and contributions to technical and non-technical reports	14
Preparation of brochures	4
Presentations	52
Media interviews	28
Requests for data	94
Coordination or participation in workshops, public displays, etc.	3
Responses to inquiries from the public, government agencies, consulting firms, etc.	2,084
Review and provide comments on proposals received under ***The Environment Act*** and ***The Dangerous Goods Transportation and Handling Act***, and other documents submitted for scientific review	150

Air Quality Management

To measure air quality and provide scientific and technical support for its enhancement and protection, the Section:

- Develops and reviews objectives and guidelines for pollutants of concern,
- Monitors ambient air quality in urban areas and near selected industrial sources to measure adherence to objectives and guidelines,
- Undertakes special project investigations,
- Provides scientific and technical support to the Department, other agencies and the public,

- Prepares reports and evaluates peer reports,
- Assists with the review and assessment of developments and provides comments for licensing, and,
- Participates in development and implementation of national strategies.

Activities

Activity	Number
National Air Pollution Surveillance - number of urban stations operated	3[1]
Monitoring industries with air emissions - number of stations operated	3[1]
Participation in federal/provincial committees	10
Coordinating/supporting strategy development and implementation	2
Support to major Department priorities	3
The Environment Act *and* ***The Dangerous Goods Handling and Transportation Act*** proposals/licences - reviewed - comments provided	 94 21
Objectives/Guidelines completed	2
Presentations	5
Requests for information (data, criteria, technical information, etc.)	20

[1] One site operated jointly with the Environmental Operations Division.

Tilston Area Air Quality: Special monitoring continued in the Tilston area, in response to concerns raised by residents about potential air quality degradation from oil and gas extraction. Monitoring was undertaken for sulphur dioxide, hydrogen sulphide and various volatile organic compounds. The Section worked with other departments, the community and industry to promote understanding of the findings and work towards resolution of issues.

Flin Flon Air Quality: Monitoring for sulphur dioxide, particulate matter, and selected heavy metals continued, as part of a broader monitoring network with findings reported regularly. Progress continued towards improvements to local air quality.

Data Management System: Implementation of a new system for data management continued; the system was commissioned to handle and archive air quality data.

Infrastructure Renewal: A new structure to accommodate air quality monitoring activities in Brandon area was acquired; air quality monitors and their support system were transferred.

Canada-Wide Standards: The Section continued to participate in the development of Canada-Wide Standards for particulate matter/ozone, dioxins/furans and mercury.

Terrestrial Quality Management

To identify, evaluate and manage risks to the environment and human health, by integrating sustainable development with innovative problem-solving, the Section :

- Monitors quality of the terrestrial environment (soils, vegetation, and wildlife),
- Provides scientific and technical support toward maintaining quality of ecosystems and restoring degraded environments to healthy condition, and,

- collects data to assist understanding of complex interactions of ecosystem components (soil, vegetation, wildlife, habitat) so that landuse decision-making will be based on sound ecological principles and all potential environmental effects of developments are considered.

The Section maintains a network of monitoring sites and conducts issue-based environmental studies to define quality of terrestrial ecosystems. The Section liaises with peers in the scientific community, and produces and distributes environmental information.

Activities include:
- Designing and conducting studies to determine if soils, vegetation communities, and wildlife are contaminated, and to document impacts of contaminants or land use practices on terrestrial ecosystems,
- Establishing and maintaining data files,
- Preparing reports and evaluating peer reports,
- Promoting development and application of guidelines, objectives and standards for terrestrial ecosystem components (included participation in developing Canada-Wide Standards for 6 priority substances, and other guidelines and best practices for preventing environmental contamination from industrial and other sources),
- Reviewing and assessing development proposals, identifying potential impacts on environmental quality and providing recommendations for licensing purposes,
- Providing scientific and technical support to government, and,
- Providing information and advice to the public, local interest groups, Aboriginal communities, environmental interest groups, consultants, industry, and other government jurisdictions.

Activities

Activity	Number
Vegetation survey of Gull Lake bog for impacts of groundwater use on biodiversity	6
Monitor ground and surface water at Neepawa and Roblin wood treatment plants	4
Monitor tree growth and health in reforestation trials where the soils are contaminated with heavy metals from Inco smelter.	4
Monitor soil, vegetation and birds in study plots near Louisiana-Pacific mill at Minitonas.	5
Sample urban garden for lead in soil	1
Monitor forest sites for impacts of HBM&S smelter emissions	3
Monitor soil and vegetation in Tilston area for effects of flare gas emissions	14
Conduct site-specific investigations	5
Prepare technical reports and data/information summaries	3
Environment Act proposals: technical review of impacts to soils, vegetation and wildlife	57
Louisiana-Pacific Stakeholder Advisory Committee meetings	2
Contaminated sites: provide technical recommendations	6
Respond to requests for data/information	25
Respond to requests for soil quality standards	15
Respond to requests for information on treated wood use and disposal	5
Committees participation	14
Department integration teams participation	2

State of Environment (SOE) Reporting

The Section:

- Collects, compiles, and interprets information about environmental quality, projected trends, and environmental management activities, and
- With Sustainable Development Coordination Unit (SDCU), coordinates development of provincial sustainability indicators and prepares provincial Sustainability Reports, in accordance with Part 5 of ***The Sustainable Development Act***.

Activities included:

- Co-chaired, with SDCU, the Sustainability Indicators Working Group to develop a draft set of provincial sustainability indicators and coordinate the public participation process, on behalf of Manitoba Round Table for Sustainable Development,
- Coordinated internal and external contributions to sustainability reports, with SDCU,
- Prepared SOE reporting products, such as indicator bulletins and fact sheets,
- Liaison with provincial, federal and other agencies responsible for environmental management, SOE and sustainability reporting,
- Maintained database of information pertinent to the reporting mandate,
- Provided information on the state of the environment to provincial and other agencies and the public,
- Coordinated business planning and performance measurement activities.

The main focus was to work closely with the SDCU to finalize a draft set of provincial sustainability indicators and develop a *Workbook* for the public participation process. A workshop for the Sustainability Indicators Working Group (comprising government and non-government members) reduced the proposed set of indicators to a manageable number. The indicator Workbook and an interactive Web site will be available to the public in May 2000. The Web site address is *www.susdev.gov.mb.ca/indicators*

Business planning activities for Environment Division continued as well as participation on the Business Planning Coordinators Council.

Table ENV.4
31-2(b) Environmental Management

Expenditures by Sub-appropriation	Actual 1999/00 $	Estimate 1999/00 FTE	Estimate 1999/00 $	Variance Over/(Under)	Expl. No.
Total Salaries and Employee Benefits	2,672.5	49.25	2,835.6	(163.1)	
Total Other Expenditures	2,222.8		2,183.2	39.6	

Chapter 25
Legislation and Inter-governmental Affairs

The unit ensures that Manitoba's environment legislation and regulations are appropriate and up-to-date and that beneficial working relationships are established and maintained with other Canadian jurisdictions.

Legislation and regulations are developed, reviewed and amended, and the Department is represented on Federal/Provincial committees and task forces and agreements are negotiated, thereby ensuring consistent and effective environmental management.

The unit liaises with legal counsel in Manitoba Justice and provides internal consulting service on legislative, enforcement, public consultation, intergovernmental and other issues.

Legislation

- Completed a multi-stakeholder consultation (COSDI) on implementation of Principles and Guidelines of Sustainable Development in environmental and landuse decision-making, co-chaired with Rural Development,
- Developed a proposed Act relating to transboundary transfers of bulk water, Bill 6, ***The Water Resources Conservation and Protection and Consequential Amendments Act,***
- Developed amendments to ***The Ozone Depleting Substances Act***, to keep current with changes in technology for replacement substances,
- Advised on proposed re-draughting of ***The Public Health Act***, as participant on the Public Health Act Review Committee,
- Co-ordinated other regulation development and amendment processes, including:
- Livestock Manure and Mortalities Management,
- Private Sewage Disposal, and,
- Storage and Handling of Gasoline,
- Departmental input into amendments to ***The Summary Convictions Act*** regulations on set fines,
- Continued to chair a committee investigating issues of biomedical wastes, and,
- Liaised between Manitoba Environment and Manitoba Justice.

Intergovernmental Affairs

- Negotiated federal/provincial agreement on environmental assessment to implement the Canada-wide Sub-Agreement on Environmental Assessment under the Harmonization Accord,
- Assisted negotiation of Inspections and Enforcement Sub-Agreement under the Harmonization Accord, and undertook negotiation of the draft Canada-Manitoba Implementation Agreement,
- Negotiation of National Accord on the Prohibition of the Bulk Removal of Water from Canadian Drainage Basins,
- Manitoba representative on intergovernmental committees:
  - North American Agreement on Environmental Cooperation; Canada Implementation Working Committee and Canada Implementation Senior Officials Committee, and,
  - Canadian Council of Ministers of Environment Committees:
    - CCME Environmental Protection and Planning Committee,
    - CCME Ad Hoc Toxic Substances Task Group, and
    - CCME Harmonization Working Groups:
      - Canada-wide Standards Implementation Committee,
      - Harmonization Two Year Review Committee,
- Implemented Manitoba/Saskatchewan Environmental Management Accord,

- Contact for implementation of Internal Trade Agreement,
- Contact on Aboriginal issues, and,
- Co-chaired a project in Slovakia for public consultation process on development of legislation for contaminated site remediation.

Table ENV.5
31-2(c) Legislation and Inter-governmental Affairs

Expenditures by Sub-appropriation	Actual 1999/00	Estimate 1999/00		Variance Over/(Under)	Expl. No.
	$	FTE	$		
Total Salaries and Employee Benefits	185.8	3.00	187.9	(2.1)	
Total Other Expenditures	96.5		92.9	3.6	

Chapter 26

Clean Environment Commission

Under ***The Environment Act***, the Manitoba Clean Environment Commission provides a mechanism through which the public can participate in environmental decision making. The Commission conducts public reviews and hearings into matters of environmental concern and provides advice and recommendations to the Minister of Conservation. The Commission, while reporting directly to the Minister, is independent of the Department.

The Commission's legislative mandate requires publication of its own ***Annual Report***, with particulars on its mandate and operations. Copies can be obtained from the Commission at Box 21420, 284 Reimer Avenue, Steinbach, MB R0A 2T3, telephone 1-800-597-3556 (toll-free).

Table ENV.6
31-2(d) Clean Environment Commission

Expenditures by Sub-appropriation	Actual 1999/00	Estimate 1999/00		Variance Over/(Under)	Expl. No.
	$	FTE	$		
Total Salaries and Employee Benefits	214.3	3.00	310.0	(95.7)	
Total Other Expenditures	70.7		188.0	117.3	

Chapter 27

International Institute for Sustainable Development

The International Institute for Sustainable Development prepares a separate annual report.

Table ISD.1

31-3 International Institute for Sustainable Development

Expenditures by Sub-appropriation	Actual 1999/00	Estimate 1999/00		Variance Over/(Under)	Expl. No.
	$	FTE	$		
Total Other Expenditures	1,145.8		1,145.9	(0.1)	

Chapter 28

Amortization of Capital Assets

With the implementation of new accounting standards with respect to capital assets, the department expensed the annual amortization cost of all completed assets based on the useful life of each asset. Assets which were purchased or constructed in 1999/00 were expensed at one-half the annual amortization rate. The amortization expense also included the portion of corporate information technology projects attributable to the department.

Table ACA.3
31-4 Amortization of Capital Assets

Expenditures by Sub-appropriation	Actual 1999/00	Estimate 1999/00		Variance Over/(Under)	Expl. No.
	$	FTE	$		
Total Other Expenditures	265.4		281.8	(16.4)	

Chapter 29

Revenue and Expenditure Summaries

RECONCILIATION STATEMENT

DETAILS	1999-00 ESTIMATES
1999-00 MAIN ESTIMATES	$154,344.1
ALLOCATION OF FUNDS FROM:	
- Canada Manitoba Enabling Vote	12,777.4
- Internal Reform and Workforce Adjustment	2,375.5
- Service First Initiative	6.6
1999-00 ESTIMATE	$167,365.6

Department of Conservation (formerly Natural Resources)

Revenue Summary By Source

for the year ended March 31, 2000 with comparative figures for the previous year

Actual 1998/99	Actual 1999/00	Increase (Decrease)	Source	1999/00 Actual	1999/00 Estimate	Variance	Expl. Number
			GOVERNMENT OF CANADA:				
151.0	151.0	0.0	1. Migratory Waterfowl Crop Damage Prevention Agreement	151.0	151.0	0.0	
17,270.8	10,193.4	(7,077.4)	2. 1997 Flood Proofing Program	10,193.4	26,804.0	(16,610.6)	1
17,421.8	10,344.4	(7,077.4)	Sub-Total	10,344.4	26,955.0	(16,610.6)	
			CURRENT OPERATING PROGRAMS:				
239.6	253.9	14.3	(a) Fisheries Fees and Sundry	253.9	230.3	23.6	
229.1	179.4	(49.7)	(b) 1997 Flood Proofing Program	179.4	1,900.0	(1,720.6)	2
6,447.9	6,406.1	(41.8)	(c) Forestry Fees and Sundry	6,406.1	6,129.3	276.8	
1,960.1	2,324.7	364.6	(d) Land Information Sales and Fees	2,324.7	2,227.6	97.1	3
5,887.6	5,990.5	102.9	(e) Licence Sales by Vendors	5,990.5	5,360.0	630.5	4
8,738.7	9,109.0	370.3	(f) Parks Fees	9,109.0	8,285.5	823.5	
4,878.6	3,016.5	(1,862.1)	(g) Regional Operations Fees & Cost Recovery	3,016.5	820.0	2,196.5	5
48,298.0	48,724.5	426.5	(h) Water Power Rentals	48,724.5	50,000.0	(1,275.5)	
270.4	133.0	(137.4)	(i) Water Resources Sundry	133.0	80.2	52.8	6
60.9	39.6	(21.3)	(j) Wildlife Sundry	39.6	51.0	(11.4)	7
286.1	306.6	20.5	(k) Sundry	306.6	261.4	45.2	
77,297.0	76,483.8	(813.2)	Sub-Total	76,483.8	75,345.3	1,138.5	
94,718.8	**86,828.2**	**(7,890.6)**	**Total Revenue**	**86,828.2**	**102,300.3**	**(15,472.1)**	
79.3	12.8	(66.5)	Sale of Government Assets	12.8	1.0	11.8	8

Revenue Summary By Source

for the year ended March 31, 2000 with comparative figures for the previous year

Explanation Number:

1. *Flood Proofing revenue is lower than the 1999/00 Estimate and lower than 1998/99 due to reduced claims under the Home and Business component, and reduced activity in the Community Diking program.*
2. *Revenue from municipalities under the 1997 Flood Proofing Program is lower than the 1999/00 Estimate due to delays related to land acquisition and delays in signed implementation agreements. Revenue is lower than 1998/99 due to differences in project work in the two years.*
3. *Revenue from Land Information Sales and Fees is higher than 1998/99 due to higher negotiated land lease with TransCanada Pipeline and increased sales .*
4. *Revenue from Licence Sales by Vendors is higher than the 1999/00 Estimate due to increased resident and non-resident angling, big game and game bird licence sales.*
5. *Revenue in Regional Operations Fees and Cost Recovery is higher than the 1999/00 Estimate due to increased recovery of fire suppression costs from other jurisdictions, and lower than 1998/99 as fire suppression cost recoveries were lower in 1999/00.*
6. *Revenue is higher than the 1999/00 Estimate in Water Resources Sundry due to increased water use fees from Manitoba Hydro for use at the Selkirk and Brandon Thermal Generating Stations, and lower than 1998/99 as water use at these stations was lower in 1999/00.*
7. *Wildlife Sundry revenue is lower than 1998/99 due to reduced Fur Royalties as a result of low market conditions and reduced trapping activity.*
8. *Revenue from the Sale of Government Assets is higher than the 1999/00 Estimate due to the sale of buildings .*

Department of Conservation (formerly Petroleum and Energy)

Revenue Summary By Source

for the year ended March 31, 2000 with comparative figures for the previous year

Actual 1998/99	Actual 1999/00	Increase (Decrease)	Source	1999/00 Actual	1999/00 Estimate	Variance	Expl. Number
			TAXATION:				
1,615.9	3,303.3	1,687.4	1. Oil and Natural Gas Tax	3,303.3	2,952.2	351.1	1
1,615.9	3,303.3	1,687.4	Sub-Total	3,303.3	2,952.2	351.1	
			CURRENT OPERATING PROGRAMS:				
1,822.5	2,886.8	1,064.3	(a) Petroleum Royalties and Fees	2,886.8	2,188.3	698.5	2
1,822.5	2,886.8	1,064.3	Sub-Total	2,886.8	2,188.3	698.5	
3,438.4	**6,190.1**	**2,751.7**	**Total Revenue**	**6,190.1**	**5,140.5**	**1,049.6**	

Explanation Number:

1. *Revenue from Oil and Natural Gas Tax is higher than 1998/99 due to higher oil prices.*
2. *Revenue from Petroleum Royalties and Fees were higher than 1998/99 due to higher oil prices.*

Department of Conservation (formerly Environment)

Revenue Summary By Source

for the year ended March 31, 2000 with comparative figures for the previous year

Actual 1998/99	Actual 1999/00	Increase (Decrease)	Source	1999/00 Actual	1999/00 Estimate	Variance	Expl. Number
			CURRENT OPERATING PROGRAMS:				
199.8	236.2	36.4	(a) Fees	236.2	172.5	63.7	1
3.8	2.5	(1.3)	(b) Sundry	2.5	10.0	(7.5)	2
203.6	238.7	35.1	Sub-Total	238.7	182.5	56.2	
203.6	**238.7**	**35.1**	**Total Revenue**	**238.7**	**182.5**	**56.2**	

Explanation Number:

1. *Revenue from Fees was higher than the 1999/00 Estimate due to an increase of licence applications, file search reviews and permits issued.*
2. *Sundry Revenue was lower than the 1999/00 Estimate and lower than 1998/99 due to lower photocopy revenue, MGEU recovery and Louisiana Pacific recoveries.*

Department of Conservation (formerly Natural Resources)

Expenditure Summary

for fiscal year ended March 31, 2000 with comparative figures for the previous year

Estimate 1999/00	Appropriation	Actual 1999/00	Actual 1998/99	Increase (Decrease)	Explanation Number
	12-1 Administration and Finance				
27.0	(a) Minister's Salary	27.0	26.1	0.9	
	(b) Executive Support:				
662.0	Salaries and Employee Benefits	590.5	390.9	199.6	
83.8	Other Expenditures	112.5	91.7	20.8	
	(c) Administrative Services:				
747.4	Salaries and Employee Benefits	725.5	674.4	51.1	
317.8	Other Expenditures	325.0	326.0	(1.0)	
	(d) Financial Services:				
1,301.8	Salaries and Employee Benefits	1,316.4	1,260.3	56.1	
377.2	Other Expenditures	347.0	310.3	36.7	
	(e) Human Resource Management:				
712.4	Salaries and Employee Benefits	785.9	726.7	59.2	
141.3	Other Expenditures	113.3	87.0	26.3	
	(f) Resource Information Systems:				
894.6	Salaries and Employee Benefits	844.3	720.0	124.3	
156.1	Other Expenditures	153.2	81.4	71.8	
5,421.4	Total 12-1	5,340.6	4,694.8	645.8	
	12-2 Regional Operations				
	(a) Headquarters Operations:				
1,478.5	Salaries and Employee Benefits	1,436.8	1,354.6	82.2	
1,114.3	Other Expenditures	1,041.3	1,075.1	(33.8)	
245.6	Problem Wildlife Control	218.7	269.0	(50.3)	
	(b) Northwest Region:				
1,968.2	Salaries and Employee Benefits	1,934.1	1,805.5	128.6	
689.9	Other Expenditures	688.6	608.7	79.9	

Department of Conservation (formerly Natural Resources)

Expenditure Summary

for fiscal year ended March 31, 2000 with comparative figures for the previous year

Estimate 1999/00	Appropriation	Actual 1999/00	Actual 1998/99	Increase (Decrease)	Explanation Number
	(c) Northeast Region:				
2,166.7	Salaries and Employee Benefits	2,092.8	2,030.4	62.4	
946.3	Other Expenditures	974.1	849.3	124.8	
	(d) Central Region:				
4,460.6	Salaries and Employee Benefits	4,401.8	4,118.4	283.4	
1,690.0	Other Expenditures	1,666.2	1,524.8	141.4	
	(e) Eastern Region:				
3,252.1	Salaries and Employee Benefits	3,240.8	3,077.4	163.4	
997.5	Other Expenditures	971.0	906.1	64.9	
	(f) Western Region:				
4,143.1	Salaries and Employee Benefits	4,145.2	3,952.9	192.3	
1,561.0	Other Expenditures	1,560.4	1,431.0	129.4	
	(g) Fire Program				
4,304.7	Salaries and Employee Benefits	4,376.2	4,310.3	65.9	
7,243.0	Other Expenditures	7,247.7	6,163.7	1,084.0	
36,261.5	Total 12-2	35,995.7	33,477.2	2,518.5	
	12-3 Resource Programs				
	12-3A Water Resources				
	(1) Administration:				
296.3	Salaries and Employee Benefits	288.5	291.6	(3.1)	
547.7	Other Expenditures	458.5	339.6	118.9	
25.0	Grant Assistance	4.9	25.0	(20.1)	
	(2) Water Licensing :				
605.5	Salaries and Employee Benefits	577.7	540.4	37.3	
64.8	Other Expenditures	65.1	30.1	35.0	
	(3) Water Planning and Development:				
1,133.5	Salaries and Employee Benefits	1,115.7	1,083.1	32.6	
127.0	Other Expenditures	142.4	145.2	(2.8)	

Department of Conservation (formerly Natural Resources)

Expenditure Summary

for fiscal year ended March 31, 2000 with comparative figures for the previous year

Estimate 1999/00	Appropriation	Actual 1999/00	Actual 1998/99	Increase (Decrease)	Explanation Number
	(4) Surface Water Management:				
785.0	Salaries and Employee Benefits	736.9	614.4	122.5	
591.3	Other Expenditures	404.7	268.1	136.6	
422.5	Canada-Manitoba Agreement for Water Quantity Surveys	421.6	402.4	19.2	
	(5) Groundwater Management:				
801.4	Salaries and Employee Benefits	715.7	557.7	158.0	
661.9	Other Expenditures	718.3	162.7	555.6	
3,931.5	(6) Waterway Maintenance:	3,601.7	3,600.5	1.2	
9,993.4	Total 12-3A	9,251.7	8,060.8	1,190.9	
	12-3B Parks and Natural Areas				
	(1) Administration:				
414.1	Salaries and Employee Benefits	411.6	422.6	(11.0)	
277.6	Other Expenditures	270.2	253.0	17.2	
134.0	Grant Assistance	134.0	134.0	0.0	
	(2) Planning and Development:				
837.8	Salaries and Employee Benefits	805.8	715.8	90.0	
246.8	Other Expenditures	248.2	197.3	50.9	
	(3) Park Districts:				
442.0	Salaries and Employee Benefits	453.2	433.0	20.2	
71.6	Other Expenditures	71.1	54.7	16.4	
	(4) Park Operations and Maintenance:				
9,893.7	Salaries and Employee Benefits	9,750.4	9,486.3	264.1	
4,376.1	Other Expenditures	4,110.5	3,494.9	615.6	1
	(5) Support Services:				
192.5	Salaries and Employee Benefits	196.9	179.7	17.2	
115.2	Other Expenditures	146.7	53.9	92.8	
17,001.4	Total 12-3B	16,598.6	15,425.2	1,173.4	

Department of Conservation (formerly Natural Resources)

Expenditure Summary

for fiscal year ended March 31, 2000 with comparative figures for the previous year

Estimate 1999/00	Appropriation	Actual 1999/00	Actual 1998/99	Increase (Decrease)	Explanation Number
	12-3C Policy Co-ordination				
779.0	(1) Salaries and Employee Benefits	740.9	583.9	157.0	
162.6	(2) Other Expenditures	147.2	116.1	31.1	
10.2	(3) Grant Assistance	10.2	10.2	0.0	
951.8	Total 12-3C	898.3	710.2	188.1	
	12-3D Forestry				
	(1) Administration:				
311.9	Salaries and Employee Benefits	311.5	356.8	(45.3)	
319.4	Other Expenditures	289.9	311.4	(21.5)	
465.8	Grant Assistance	465.8	465.8	0.0	
	(2) Forest Resources Management:				
979.4	Salaries and Employee Benefits	990.4	1,022.4	(32.0)	
701.8	Other Expenditures	566.4	514.3	52.1	
	(3) Forest Health and Ecology:				
1,565.5	Salaries and Employee Benefits	1,727.1	1,701.4	25.7	
2,675.0	Other Expenditures	2,469.8	2,123.0	346.8	2
	(4) Forest Economics and Marketing:				
357.5	Salaries and Employee Benefits	350.5	333.2	17.3	
60.9	Other Expenditures	68.3	48.6	19.7	
1,411.9	(5) Forest Regeneration Stock	1,462.0	1,499.2	(37.2)	
-	(6) Pineland Forest Nursery:	-	-	-	
8,849.1	Total 12-3D	8,701.7	8,376.1	325.6	
	12-3E Fisheries				
	(1) Administration:				
213.3	Salaries and Employee Benefits	230.7	215.1	15.6	
137.4	Operating Expenditures	204.5	128.7	75.8	
	(2) Fish Culture:				
676.9	Salaries and Employee Benefits	684.3	657.7	26.6	
294.0	Operating Expenditures	293.5	284.1	9.4	

Department of Conservation (formerly Natural Resources)

Expenditure Summary

for fiscal year ended March 31, 2000 with comparative figures for the previous year

Estimate 1999/00	Appropriation	Actual 1999/00	Actual 1998/99	Increase (Decrease)	Explanation Number
	(3) Fisheries Habitat Management:				
344.9	Salaries and Employee Benefits	350.8	334.0	16.8	
82.4	Operating Expenditures	77.0	70.5	6.5	
	(4) Sport and Commercial Fishing Management:				
504.5	Salaries and Employee Benefits	504.1	482.3	21.8	
104.3	Operating Expenditures	107.8	103.8	4.0	
250.0	(5) Northern Fishermen's Freight Assistance	250.0	250.0	0.0	
350.0	(6) Fisheries Enhancement Initiative	349.1	349.5	(0.4)	
2,957.7	Total 12-3E	3,051.8	2,875.7	176.1	
	12-3F Wildlife				
	(1) Administration:				
374.4	Salaries and Employee Benefits	349.7	342.5	7.2	
291.3	Other Expenditures	368.4	295.2	73.2	
207.0	Grant Assistance	207.0	207.0	0.0	
	(2) Big Game and Fur Management:				
594.6	Salaries and Employee Benefits	578.9	550.4	28.5	
233.5	Other Expenditures	234.1	192.0	42.1	
89.9	Grant Assistance	89.9	89.9	0.0	
	(3) Habitat and Land Management:				
701.1	Salaries and Employee Benefits	643.8	655.5	(11.7)	
194.6	Other Expenditures	178.1	151.6	26.5	
645.0	Canada-Manitoba Agreement on Agricultural Sustainability	645.0	645.0	0.0	
	(4) Conservation Data and Nongame Management:				
366.3	Salaries and Employee Benefits	354.0	316.3	37.7	
145.8	Other Expenditures	121.0	90.2	30.8	
338.3	(5) Canada-Manitoba Waterfowl Damage Prevention Agreement	325.5	339.1	(13.6)	
225.0	(6) Wildlife Habitat Enhancement Initiative	224.7	222.2	2.5	
4,406.8	Total 12-3F	4,320.1	4,096.9	223.2	

Department of Conservation (formerly Natural Resources)

Expenditure Summary

for fiscal year ended March 31, 2000 with comparative figures for the previous year

Estimate 1999/00	Appropriation	Actual 1999/00	Actual 1998/99	Increase (Decrease)	Explanation Number
	12-3G Computer Graphics				
537.5	Salaries and Employee Benefits	543.3	521.0	22.3	
55.1	Other Expenditures	52.8	53.9	(1.1)	
592.6	Total 12-3G	596.1	574.9	21.2	
50.0	**12-3H Habitat Enhancement Fund**	50.0	50.0	0.0	
432.1	**12-3J Special Conservation and Endangered Species Fund**	313.1	431.1	(118.0)	
	12-3K Sustainable Development Co-ordination Unit				
229.1	Salaries and Employee Benefits	219.7	155.7	64.0	
259.2	Other Expenditures	240.8	244.6	(3.8)	
488.3	Total 12-3K	460.5	400.3	60.2	
45,723.2	Total 12-3	44,241.9	41,001.2	3,240.7	
	12-4 Land Information Centre				
	(a) Administration:				
600.8	Salaries and Employee Benefits	550.1	529.9	20.2	
483.8	Other Expenditures	510.1	472.4	37.7	
	(b) Crown Lands Operations:				
535.5	Salaries and Employee Benefits	465.3	514.4	(49.1)	
1,080.0	Other Expenditures	1,201.9	1,102.4	99.5	
	(c) Crown Lands Registry:				
238.0	Salaries and Employee Benefits	207.1	170.7	36.4	
183.4	Other Expenditures	154.4	129.8	24.6	
	(d) Survey Services:				
1,510.3	Salaries and Employee Benefits	1,240.1	1,235.7	4.4	
501.3	Other Expenditures	384.8	491.0	(106.2)	
(1,529.6)	Less: Recoverable from Other Appropriations	(1,158.4)	(1,708.3)	549.9	3

Department of Conservation (formerly Natural Resources)

Expenditure Summary

for fiscal year ended March 31, 2000 with comparative figures for the previous year

Estimate 1999/00	Appropriation	Actual 1999/00	Actual 1998/99	Increase (Decrease)	Explanation Number
	(e) Remote Sensing:				
634.6	Salaries and Employee Benefits	634.9	608.4	26.5	
156.2	Other Expenditures	115.7	94.2	21.5	
(23.7)	Less: Recoverable from Other Appropriations	(5.3)	(2.8)	(2.5)	
	(f) Distribution Centre:				
376.7	Salaries and Employee Benefits	372.6	365.0	7.6	
296.5	Other Expenditures	318.4	262.7	55.7	
(95.0)	Less: Recoverable from Other Appropriations	(87.6)	(72.3)	(15.3)	
	(g) Land Mapping Services:				
504.0	Salaries and Employee Benefits	497.4	478.7	18.7	
264.6	Other Expenditures	227.0	549.8	(322.8)	
5,717.4	Total 12-4	5,628.5	5,221.7	406.8	
	12-5 Expenditures Related to Capital				
485.6	(a) Equipment and Infrastructure	394.0	414.3	(20.3)	
5,290.4	(b) Water Projects	4,781.9	3,371.9	1,410.0	4
4,152.3	(c) Park Facilities	4,184.1	5,336.7	(1,152.6)	5
(1,500.0)	(d) Less: Recoverable from Capital Initiatives	(1,499.7)	(500.0)	(999.7)	6
8,428.3	Total 12-5	7,860.3	8,622.9	(762.6)	
1,926.6	**12-6 Amortization**	1,709.5	633.8	1,075.7	7
63,887.2	**12-7 Flood Proofing Programs - Capital**	23,478.5	37,629.4	(14,150.9)	8
0.0	**1210 Court Judgement**	0.0	123.5	(123.5)	9
167,365.6	**TOTAL EXPENDITURES**	**124,255.0**	**131,404.5**	**(7,149.5)**	
280.0	**B.7 Capital Investment - Natural Resources**	617.1	1,194.5	(577.4)	10

Department of Conservation (formerly Natural Resources)

Expenditure Summary

for fiscal year ended March 31, 2000 with comparative figures for the previous year

Estimate 1999/00	Appropriation	Actual 1999/00	Actual 1998/99	Increase (Decrease)	Explanation Number

Explanation Number:

1. *Increase in Park Operations and Maintenance is due to increased expenditures under the Park Districts Enhanced Services program , expansion of the Beach Safety program at Grand Beach Provincial Park and increased equipment purchases.*
2. *Increase in Forest Health and Ecology is due mainly to costs incurred for the Emergency Spruce Budworm Spraying Program.*
3. *Decrease in cost recovery is due to decreased demand for survey services under the Northern Flood Agreement.*
4. *Increase in Water Projects is due to increased expenditures in the Waterway Crossings, Pasquia Polder, South Buffalo Channel, Red River Floodway and Seine River Siphon projects.*
5. *Decrease in Park Facilities is due regular park facility enhancement compared to 1998/99 expenditures related to preparation for the Pan Am Games.*
6. *Increase in Recoveries from Capital Initiatives is due to increased expenditures in the Waterway Crossings program.*
7. *Increase in Amortization reflects implementation of full year desktop and half-year SAP/Better Methods amortization and the addition of new assets in 1999/00.*
8. *Decrease in Flood Proofing Programs is mainly due to a reduction in the number of subsidy claims, as this is the third year of the Home and Business component, and in the Community Diking and Provincial Infrastures programs due to timing of projects and delays in obtaining environmental approvals and land acquisition.*
9. *Order in Council 282/98 ordered the settlement of a claim in 1998/99. There was no comparable expenditure made in 1999/00.*
10. *Capital investment purchases vary from year to year. In 1998/99, 50 capital assets were acquired while in 1999/00 12 assets were acquired.*

Department of Conservation (formerly Petroleum and Energy)

Expenditure Summary

for fiscal year ended March 31, 2000 with comparative figures for the previous year

Estimate 1999/00	Appropriation	Actual 1999/00	Actual 1998/99	Increase (Decrease)	Explanation Number
	23-1 Administration and Finance				
	(c) Financial and Administrative Services:				
10.0	Other Expenditures	8.4	9.1	(0.7)	
10.0	Total 23-1	8.4	9.1	(0.7)	
	23-2 Energy and Mineral Resources				
	(b) Petroleum and Energy:				
1,537.5	Salaries and Employee Benefits	1,454.9	1,364.9	90.0	
612.0	Other Expenditures	590.9	505.5	85.4	
2,149.5	Total 23-2	2,045.8	1,870.4	175.4	
47.7	**23-4 Amortization**	47.7	0.0	47.7	1
2,207.2	**TOTAL EXPENDITURES**	**2,101.9**	**1,879.5**	**222.4**	

Explanation Number:

1. Increase in Amortization reflects implementation of full year desktop and half-year SAP/Better Methods amortization and the addition of new assets in 1999/00.

Department of Conservation (formerly Environment)

Expenditure Summary

for fiscal year ended March 31, 2000 with comparative figures for the previous year

Estimate 1999/00	Appropriation	Actual 1999/00	Actual 1998/99	Increase (Decrease)	Explanation Number
	31-1 Administration and Finance				
27.0	(a) Minister's Salary	14.3	26.1	(11.8)	
	(b) Executive Support:				
365.5	Salaries and Employee Benefits	307.0	369.3	(62.3)	
75.8	Other Expenditures	86.7	112.1	(25.4)	
	(c) Financial and Administrative Services:				
729.2	Salaries and Employee Benefits	668.2	599.3	68.9	
316.8	Other Expenditures	245.1	286.7	(41.6)	
1,514.3	Total 31-1	1,321.3	1,393.5	(72.2)	
	31-2 Environmental Management				
	(a) Environmental Operations:				
5,036.9	Salaries and Employee Benefits	4,774.7	4,238.5	536.2	
1,353.9	Other Expenditures	1,266.1	1,206.4	59.7	
	(b) Environmental Management:				
2,835.6	Salaries and Employee Benefits	2,672.5	2,642.4	30.1	
2,183.2	Other Expenditures	2,222.8	2,123.8	99.0	
	(c) Legislation and Intergovernmental Affairs:				
187.9	Salaries and Employee Benefits	185.8	176.1	9.7	
92.9	Other Expenditures	96.5	59.1	37.4	
	(d) Clean Environment Commission:				
310.0	Salaries and Employee Benefits	214.3	232.9	(18.6)	
188.0	Other Expenditures	70.7	136.1	(65.4)	
12,188.4	Total 31-2	11,503.4	10,815.3	688.1	

Department of Conservation (formerly Environment)

Expenditure Summary

for fiscal year ended March 31, 2000 with comparative figures for the previous year

Estimate 1999/00	Appropriation	Actual 1999/00	Actual 1998/99	Increase (Decrease)	Explanation Number
1,145.9	**31-3 International Institute for Sustainable Development**	1,145.8	1,145.8	0.0	
281.8	**31-4 Amortization**	265.4	14.7	250.7	1
15,130.4	**TOTAL EXPENDITURES**	**14,235.9**	**13,369.3**	**866.6**	
0.0	**B Capital Investment - Environment**	0.0	21.9	(21.9)	

Explanation Number:

1. Increase in Amortization reflects implementation of full year desktop and half-year SAP/Better Methods amortization and the addition of new assets in 1999/00.

Department of Conservation (formerly Natural Resources)

Five Year Expenditure and Staffing Summary by Appropriation ($000)

for years ending March 31, 1996 - March 31, 2000

	Actual/* Adjusted Expenditures									
	1995-96		1996-97		1997-98		1998-99		1999-00	
APPROPRIATION	**FTE**	**$**	**FTE**	**$**	**FTE**	**$**	**FTE**	**$**	**FTE**	**$**
12-1 Administration and Finance	84.83	4,511.9	84.83	4,426.4	83.83	4,470.3	83.83	4,694.8	83.83	5,340.6
12-2 Regional Operations	448.67	33,447.8	448.67	31,910.7	445.92	32,717.7	445.02	33,477.2	445.02	35,995.7
12-3 Resource Programs										
12-3A Water Resources	58.90	7,581.2	58.90	7,904.0	59.90	8,269.0	61.90	8,060.8	65.90	9,251.7
12-3B Parks and Natural Areas	282.25	14,703.7	273.65	14,642.4	275.65	15,324.5	264.31	15,425.2	264.31	16,598.6
12-3C Policy Co-ordination	13.00	858.4	13.00	847.9	12.75	749.2	13.75	710.2	13.75	898.3
12-3D Forestry	53.06	8,696.3	53.06	8,261.6	53.06	8,268.1	56.06	8,376.1	56.06	8,701.7
12-3E Fisheries	37.19	2,698.1	37.19	2,734.0	37.19	2,699.1	37.19	2,875.7	37.19	3,051.8
12-3F Wildlife	37.79	4,067.3	37.79	3,790.5	37.79	3,907.4	37.79	4,096.9	37.79	4,320.1
12-3G Computer Graphics	12.00	559.9	12.00	564.0	12.00	572.1	12.00	574.9	12.00	596.1
12-3H Habitat Enhancement Fund	......	50.0	......	50.0	......	50.0	......	50.0	......	50.0
12-3J Special Conservation and Endangered Species Fund	......	348.2	......	431.4	......	366.6	......	431.1	......	313.1
12-3K Sustainable Development Co-ordination Unit	5.00	416.1	5.00	351.6	5.00	394.0	5.00	400.3	5.00	460.5
12-3K (old) Snowmobile Network Opportunities Fund	......	260.0	......	362.3	......	......	......	......	......	......
12-4 Land Information Centre	94.00	5,700.1	94.00	5,446.8	94.00	5,381.4	94.00	5,221.7	94.00	5,628.5
Total Operating	1,126.69	83,899.0	1,118.09	81,723.6	1,117.09	83,169.4	1,110.85	84,394.9	1,114.85	91,206.7
12-5 Expenditures Related to Capital		5,048.8		6,010.7		12,012.7		8,622.9		7,860.3
12-6 Amortization		......		......		......		633.8		1,709.5
12-7 Flood Proofing Programs		......		......		9,989.0		37,629.4		23,478.5
Court Judgements		4.0		......		......		123.5		0.0
Total	1,126.69	88,951.8	1,118.09	87,734.3	1,117.09	105,171.1	1,110.85	131,404.5	1,114.85	124,255.0

* Adjusted figures reflect historical data on a comparable basis in those appropriations affected by a reorganization during the years under review.

NOTES:

Effective the 1995/96 fiscal year, Venture Manitoba Tours Ltd. was transferred to Other Appropriations (27). Historical information remains with Conservation.

Effective the 1995/96 fiscal year, Pineland Forest Nursery became a Special Operating Agency. Historical information remains with Conservation.

Department of Conservation (formerly Petroleum and Energy)

Five Year Expenditure and Staffing Summary by Appropriation ($000)

for years ending March 31, 1996 - March 31, 2000

	Actual/* Adjusted Expenditures									
	1995-96		1996-97		1997-98		1998-99		1999-00	
APPROPRIATION	**FTE**	**$**	**FTE**	**$**	**FTE**	**$**	**FTE**	**$**	**FTE**	**$**
23-1C Administration and Finance (CHEC)	......	23.4	......	10.0	......	10.0	......	9.1	......	8.4
23-2B Petroleum and Energy	31.10	2,097.3	27.92	1,806.3	27.08	1,771.7	28.92	1,870.4	31.00	2,045.8
Total Operating	31.10	2,120.7	27.92	1,816.3	27.08	1,781.7	28.92	1,879.5	31.00	2,054.2
23-4 Amortization		......		......		......		0.0		47.7
Total	31.10	2,120.7	27.92	1,816.3	27.08	1,781.7	28.92	1,879.5	31.00	2,101.9

* Adjusted figures reflect historical data on a comparable basis in those appropriations affected by a reorganization during the years under review.

NOTES:

Department of Conservation (formerly Environment)
Five Year Expenditure and Staffing Summary by Appropriation ($000)
for years ending March 31, 1996 - March 31, 2000

	Actual/* Adjusted Expenditures									
	1995-96		1996-97		1997-98		1998-99		1999-00	
APPROPRIATION	**FTE**	**$**	**FTE**	**$**	**FTE**	**$**	**FTE**	**$**	**FTE**	**$**
31-1 Administration and Finance	26.00	1,397.3	26.50	1,725.9	26.50	1,539.0	23.00	1,393.5	23.00	1,321.3
31-2 Environmental Management	148.25	11,074.1	144.75	10,880.1	144.75	10,852.1	147.75	10,815.3	148.75	11,503.4
31-3 International Institute for Sustainable Development		1,375.0	......	1,145.9	......	916.8	......	1,145.8	......	1,145.8
Total Operating	174.25	13,846.4	171.25	13,751.9	171.25	13,307.9	170.75	13,354.6	171.75	13,970.5
31-4 Amortization		......		......		......		14.7		265.4
Total	174.25	13,846.4	171.25	13,751.9	171.25	13,307.9	170.75	13,369.3	171.75	14,235.9

* Adjusted figures reflect historical data on a comparable basis in those appropriations affected by a reorganization during the years under review.

NOTES:

Chapter 30
Manitoba Conservation Publications 1999-2000

Administration

Annual Report 1998-1999 (Manitoba Environment)
Annual Report 1998-1999 (Manitoba Natural Resources)
Manual of Instructions for Vendors of Angling Licences
Manual of Instructions for Vendors of Park Vehicle Permits
Manual of Instructions for Vendors of Wildlife Licences
Natural Resources Publications List, annotated
Natural Resources Video and Slide Program List, annotated

Environment - Reports

99-02 Ralley, Wendy, ***Water quality of the Lac Du Bonnet area 1997 to 1998 status report***
99-03 Green, D.J. and W.N. Turner, ***South Tobacco Creek manured watershed runoff study: Interim report***
99-04 Jones, Geoff, Jason Greenall, and Elizabeth Punter, ***A Preliminary Vegetation Survey of the Gull Lake Wetland Areas***
99-05 Hughes, C.E., ***Water quality assessment of Paint and Liz Lakes, Manitoba, Canada***
99-06 Hughes, C.E., ***Water quality assessment of the Whitemud River Watershed, 1996 through 1998, Manitoba Canada***
99-07 Hughes, C.E., ***Water quality assessment of eight streams in the West Souris River Conservation District, from July 1996 through April 1999, Manitoba, Canada***
99-08 Jones, Geoff, ***Microcystin-LR in muncipal surface water supplies of southern manitoba, June 1996 - February 1999***
99-09 Pollution Prevention Branch, ***Setting the vision for waste reduction to the Year 2000: WRAP 98 workshop summary, February 12 & 13, 1998, Fort Garry Place, Winnipeg, Manitoba***
99-10 Pollution Prevention Branch, ***Evaluation of the Multi-Material Stewardship (Interim Measures) Regulation: final report***
99-11 Ralley, Wendy, ***Preliminary report on the water quality of Falcon Lake, Manitoba***
99-12 Richmond, Kelly-Anne, ***Assessment of Shoal Lake phytoplankton, 1992-1996***

Environment - Information Bulletins

99-01E ***Space heating used oil burners***

Environment - Guidelines

99-01 ***Policy on sewage disposal in livestock manure facilities***

Environment - Publications produced with partner

Canadian Water Resources Association, Manitoba Environment, Canada-Manitoba Agreement on Agricultural Sustainability, ***Manitoba rural water quality: toxic blue-green algae***

Fisheries

Barriers to Fish Passage on Agro-Manitoba Streams
Little Saskatchewan River Watershed Management
Manitoba Anglers' Guide 2000, with Fish Futures
Manitoba Fisheries Enhancement Initiative Annual Report 1998-1999

Manitoba Fisheries Enhancement Initiative... Working Together for Manitoba's Fisheries, 1998-1999, brochure
Manitoba Fisheries Enhancement Initiative... Working Together for Manitoba's Fisheries, 1999-2000, brochure,
Manitoba Round Table for Sustainable Development - Fisheries, video, English or Odjii Cree
What You Told Us, sustainable development strategy
Wookbook on Fish, sustainable development strategy

Forestry

Ecosystems Based Management in Manitoba, ***First Nations EBM Newsletter***, January 2000
Ecosystems Based Management in Manitoba, **Newsletter 2**, February 2000
Peckett, Marilyn, ***Ecoregion 90: the Social and Economic Landscape***, report
Ten-Year Forest Management Plan Submission Guidelines
Wood Supply Analysis and Verification Documentation Requirements, (Pine Falls Paper Company Ten-Year Forest Management Plan)
Dutch Elm Disease, Questions and Answers brochure

Licencing Advisory Committee

Client Satisfaction Survey, questionnaire
Lodges and Outfitters Licencing Requirements, booklet
Update 1, newsletter

Manitoba Habitat Heritage Corporation

Annual Report 1998-1999
Conservation Agreements Act, brochure
Land Donations, brochure
Twice-Over Grazing, booklet

Parks and Natural Areas

Birds Hill Park Map
Cedar Bog Trail, Summer, brochure
Cedar Bog Trail, Winter, brochure
Nimowin Trail, brochure
Pine Ridge Trail, brochure
Duff Roblin Park, brochure
Birds Hill Events, poster
Kenosewun Events, poster
Grand Beach Events, poster
Hecla Events, poster
Camp Morton Park Map
Paint Lake Events, poster
Whiteshell Park Map
McGillvary Trail, brochure
Whiteshell River Trail, brochure
Forester's Footsteps, brochure
Petroforms of Manitoba, brochure
Spirit Sands Trails, brochure
Spruce Woods Events, poster

Petroleum and Energy - External

Fox, J.N., Martiniuk, C.D., Oosthuizen, U., and Klassen, H.J., *Unlocking Manitoba's Petroleum Potential*, ***Journal of Canadian Petroleum Technology***, December 1999.
Martiniuk, C.D., Nicolas, M.P.B., and Fox, J.N., ***POF18-2000 - Geology, Reservoir Characteristics and Petroleum Potential of the MC-1 Member, Mission Canyon Formation, Southwestern Manitoba***

Petroleum and Energy - Miscellaneous

Oil Activity Review, 1998
Home EnergyEfficiency Illustrated Guides, ***Booklet #8 - Indoor Air Quality and Ventilation***
Energy in Manitoba, June 1999

Petroleum and Energy - Preliminary Geological Maps

Stratigraphic Map Series M-3a Structure Contour Map, ***Mississippian, Cruickshank Crinoidal Facies, Lodgepole Formation, Daly Field Area***
Stratigraphic Map Series M-4 Structure Contour Map, ***Mississippian, Upper Virden Member, Lodgepole Formation, Virden Field Area***

Regional Operations

Aboriginal Moose Management, Our Roles and Responsibilities, brochure, Northwestern Region and Opaskwayak Cree Nation Resource Committee
Fireline Notebook, Fire Program
Hunter Education Manual, with Manitoba Wildlife Federation
1999 Manitoba Firearms Incidents Report, Headquarters
Polar Bear Alert Report, Polar Bear Technical Committee
Safety Tips for Emergency Firefighters, Fire Program
The Living Dinosaur - Sturgeon Management on the Winnipeg River, video, Eastern Region

Sustainable Development Coordination Unit

Annual Report 1998-1999, Manitoba Round Table on Sustainable Development
Annual Report 1998-1999, Sustainable Development Innovations Fund
Applying Manitoba Policies for Aboriginal People Living in Winnipeg
Capital Region Review Panel Interim Report
Capital Region Review Panel Final Report
Manitoba Round Table on Environment and Economy 1988-97
Report of the Consultation on Sustainable Development Implementation (COSDI)
What You Told Us - Fish
Workbook on Fish
Workbook on Wildlife

Water Resources

A Review of the Red River Floodway Operating Rules, Red River Floodway Operation Review Committee
Water Use and Allocation Review - Summary and Conclusions, 64 pp. Booklet

Wildlife

Biodiversity Inventory of Alonsa Wildlife Management Area and Alonsa PFRA Community Pasture, Technical Report 2000-05w

Bionet Newsletter, 4 issues: *Summer, Fall, Winter, Spring*

Borkowsky, Christine, ***Manitoba Tall Grass Prairie Preserve Natural Resource Inventory V***, Technical Report 99-04w

Borkowsky, Christine, and Jones, Robert E., ***Manitoba Tall Grass Prairie Preserve - Natural Resource Inventory V***, Technical Report 99-03w

Jones, Robert E., and Fortney, ***Preliminary Inventory of the Interlake Prairie***, Technical Report 99-05

Manitoba Hunting Guide 2000

Manitoba Trapping Guide 2000

McMahon, Blair, and Gifford, Marlene, ***Mars Hill Wildlife Management Area Natural Resource Inventory***, Technical Report 2000-01w

Neily, Wayne P., ***Dog Lake Wildlife Management Area Wildlife Inventory***, Technical Report 2000-02w

Niely, Wayne P., and Strutt, Kim, ***Whitemud Watershed Wildlife Management Area Wildlife Inventory, Edrans and Hummerston Units***, Technical Report 2000-03w

Partners in Flight Conceptual Plan

Partners in Flight ***Manitoba News*** 2/1, Spring/Summer 1999

Tallgrass Prairie Preserve, brochure

Wildlife Inventory, St. Malo and Rat River Wildlife Management Areas, Technical Report 2000-04w

Wildlife What You Told Us, sustainable development strategy

Chapter 31

Legislation of the Department

The Conservation Agreements Act C173
The Contaminated Sites Remediation Act C205
The Crown Lands Act C340
[except Sections 6, 7, 10, 12(1), 14, 16, 17, 18, 21, 23 and 24 to 28 both inclusive, insofar as they relate to the administration of Crown Lands which may be designated by the Minister of Conservation as agricultural Crown Lands, and Agricultural Crown Lands Grazing and Hay Permits Regulation (Manitoba Regulation 288/88) and Forage Leases Regulation (Manitoba Regulation 46/88 R)]
The Dangerous Goods Handling and Transportation Act D12
The Dutch Elm Disease Act D107
The Dyking Authority Act D110
The Ecological Reserves Act E5
The Endangered Species Act E111
The Energy Act E112
The Environment Act E125
The Fires Prevention Act (Part I) F80
The Fisheries Act (except Part III) F90
The Fishermen's Assistance and Polluters' Liability Act F100
The Forest Act F150
The Gas Pipe Line Act G50
The Gas Allocation Act G52
The Greater Winnipeg Gas Distribution Act (S.M. 1988-89, c.40)
The Ground Water and Water Well Act G110
The Manitoba Habitat Heritage Act H3
The Manitoba Hazardous Waste Management Corporation Act H15
The Homeowners Tax and Insulation Assistance Act H75
(Part V and section 1 and Part VI as they related to subjects covered under Part V)
The International Peace Garden Act I70
The Lake of the Woods Control Board Act L30
The Manitoba Natural Resources Transfer Act N30
The Natural Resources Agreement Act, 1938 N40
An Act to ratify a certain Agreement between the Government of the Dominion of Canada and the Government of the Province of Manitoba N50
The Manitoba Natural Resources Transfer Act, Amendment Act N60
The Manitoba Natural Resources Transfer Act, Amendment Act, 1963 N70
The Oil and Gas Act O34
The Oil and Gas Production Tax Act O37
The Ozone Depleting Substances Act O80
The Provincial Parks Act P20
The Plants Pests and Diseases Act P90
[that portion of clause 16(c) that pertains to arborists and clause 16(i)]
The High-Level Radioactive Waste Act R10
The Surveys Act (Part II) S240
The Sustainable Development Act S270
The Tourism and Recreation Act T100
(that portion of clauses 4(c) and (d), sections 5 and 6 and clauses 8(1)(a), (d), (f) and (g) that pertain to the licensing and operation of outfitters, hunting or fishing lodges and their out-camps)
The Waste Reduction and Prevention Act W40
The Water Commission Act W50

Legislation of the Department (continued)

The Water Power Act W60
The Water Resources Administration Act W70
The Water Rights Act W80
The Water Supply Commissions Act W100
The Wildfires Act W128
The Wildlife Act W130
[except that portion of clause 89(e) that applies to compensation for damage to crops caused by wildlife as it pertains to big game and migratory waterfowl]
The Wild Rice Act W140
The Manitoba Fishery Regulations made pursuant to Section 34 of the Fisheries Act (Canada)